



Machine Data Viewer MDV - 3004

User's manual

Introduction

Thank you very much for your purchasing of our product [e-p@k](#) MDV-3004₁.

[e-p@k](#) is the tool provided by our company to help operation rate improving activity of customer's equipment.

Please carefully read this manual before using and use our [e-p@k](#) correctly to improve your company's profit by making use of function of [e-p@k](#) Ver.3₁.

Accessories

- Install manual 1 copy
- Fax sheet for user registration 1 sheet
- Manual is provided inside CD (Operation manual in hardcopy is sold separately.)

License

License is required for each personal computer. (License sales is also possible. Please consult separately.)
Activation key will be contacted after user's registration.

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1 . Notice for usage related to safety

In this manual important contents are listed to use safely and correctly by preventing safety hazard and damage of property for user and adjacent person from occurring. Please read this manual carefully before using this machine and comply with listed matters. Also never execute improper operations not listed in this manual otherwise it could be cause of damage of MDR-3004 and injury for person. Remember that failure·trouble of personal computer and erasing·damage of data or failure·trouble of this product caused by improper handling shall be out of guarantee of our company.

1 - 1 . Danger

This indication mark suggests the handling ignoring the mark may lead to death or serious injury.



(1) . Warning matters on design

- This product is not supposed to use operation control device of equipment·device other than 「e-p@k system」. Failsafe system design for failure and stoppage of this product shall be executed when this product is used for these usages. Also in this case install stop switch·emergency stop switch separately giving priority to this product.
- Never apply this machine to the usage related to safety of device·human body.
- This product is not supposed to be applied such usages as aircraft instruments, aerospace instrument, main line communication device, nuclear energy control equipment and medical instrument related to life support where extremely high reliability and safety are required. Therefore this product cannot be used for these usages.

(2) . Warning items for wiring work

- Execute installing confirming electric power is not supplied when interface connector is connected because there is potential hazard that electric shock could be occurred.
- Do not touch the equipment, etc. with wet hands. It could be cause of electric shock if power source plug is connected to plug outlet.

1 - 2 . C a u t i o n

This indication mark suggests the handling ignoring the mark may lead to injury or physical damage.



(1) . Notices during mounting

- Attach cable to connector surely. Otherwise it could be cause of incorrect input or incorrect output.

(2) . Warning items for wiring work

- Wiring to main body shall be executed correctly after confirming rated voltage. It could be cause of fire and failure when power source is connected to other than rated voltage and incorrect wiring should be executed.
- Connection with main body of PLC shall be executed by following the warning·notice of instruction of PLC manufacturer and peripheral equipment manufacturer.

(3) . Others

- All data inside personal computer (hard disk, etc.) shall be saved in MO and FD, etc. as backup when software is installed or before change when any of computer environment is tried to change. Suffering can be controlled at the minimum when data was erased or damaged by occurrence of failure and handling error. Remember that we have no liability for erasing or damage of data due to neglecting of data backup saving.

1 - 3 . P r e v e n t i o n f r o m f a i l u r e

- Avoid storing and using of this product under the direct sun shining.
- Handling of personal computer, PLC, and peripheral equipment shall be executed according to procedure specified by manufacturer of these devices after carefully reading respective manual.

2 . G u a r a n t e e

2 - 1 . G u a r a n t e e c o n d i t i o n

Carefully read description of 『Service condition of this program』 indicated in this manual.

2 - 2 . G u a r a n t e e p e r i o d

(1) . Guarantee period

Guarantee period shall be 12 months after shipping from our factory. (For three (3) months when failure is the same repaired portion.) We will repair free of charge (factory repairing) when cause of failure is due to our company's responsibility under normal environmental condition specified in general specifications.

(2) . Guarantee range

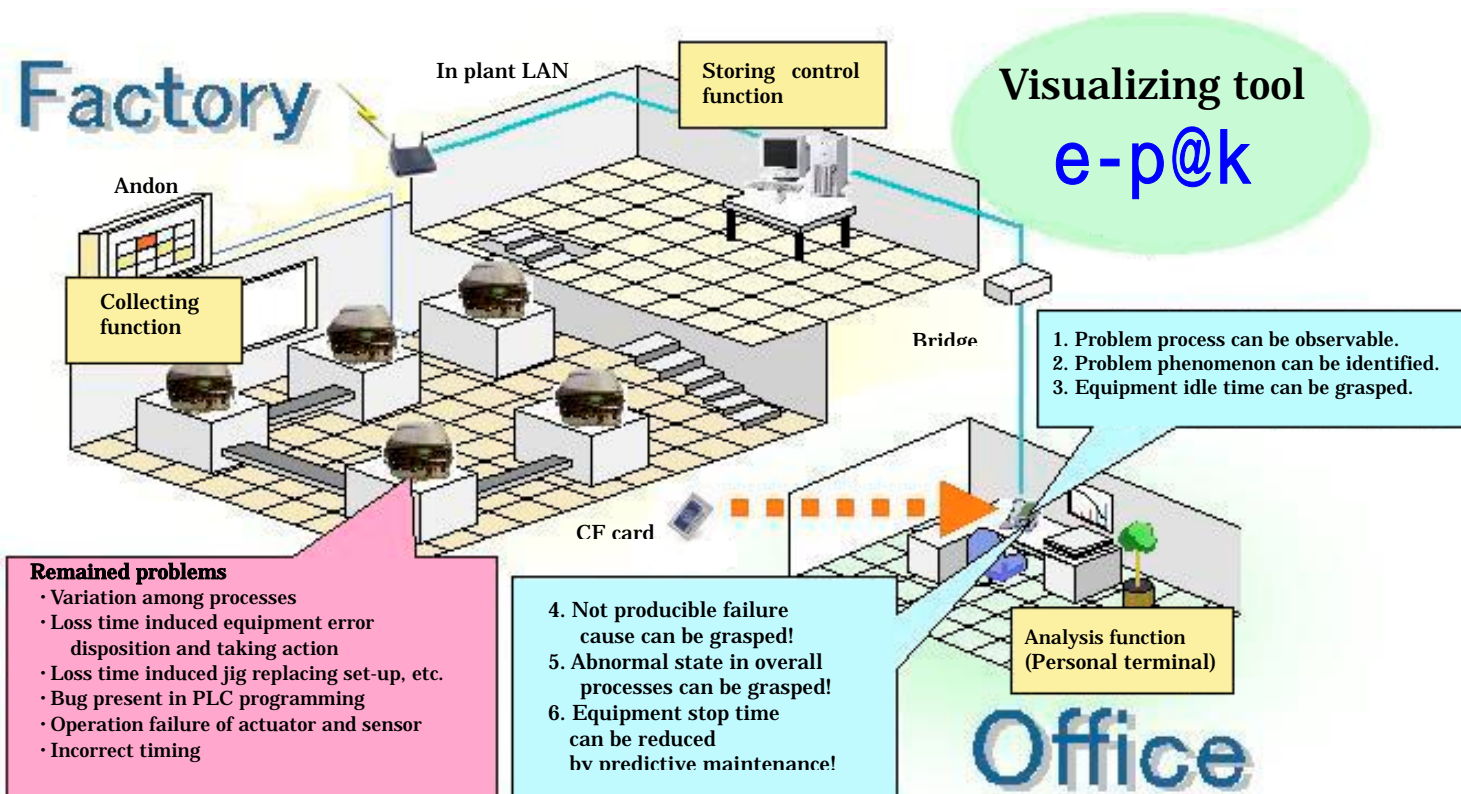
Such software other than preinstalled 『e-p@k system』 as system, application software, and drivers that are installed by customer shall be controlled by customer.

1 . What is e-p@k

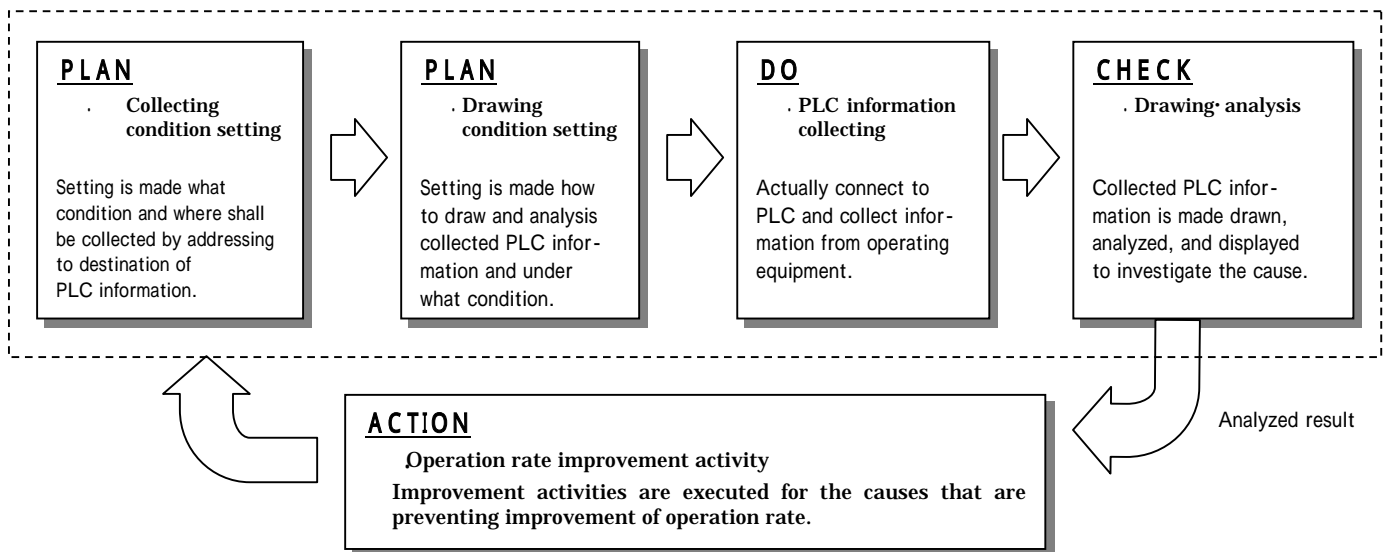
1 - 1 . e - p@k outline

e-p@k is general term of production support system to monitor integrated overall production process and to execute investigation of cause to interfere equipment operation.

You can utilize this product as a tool to find problem process out of overall production processes, to grasp abnormal state and idle time remained within equipment by specific focusing of problem phenomena in the problem process, and to help operation rate improvement activities in production process by investigating cause of failure that has no recurrence.



(1) . Basic workflow



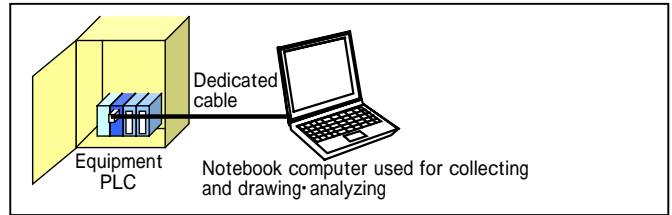
Operation rate of production process is made improved by circulating “PDCA cycle” mentioned above.

(2) . Structure and commercial goods of e-p@k

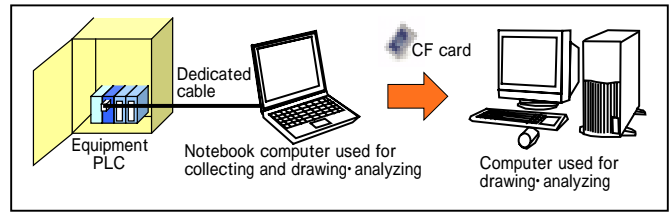
Following commercial goods can be selected so that effective operation rate improvement activity can be made matching with production process of customer.

Product name	Product model	Explanation
Machine data recorder (Collecting box-PC)	MDR - 3 0 0 4	Permanent installation model BOX-PC to collect information on equipment
Collecting software package	MDR (S) - 3 0 0 4	Software package to collect information on equipment
Drawing software package	MDV - 3 0 0 4	Software package to draw·analyze information on collected equipment

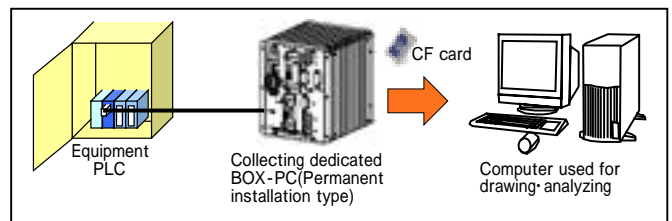
Structure . In case collecting using notebook computer, etc.
 From collecting to drawing·analyzing is executed using one set notebook computer by installing 「Collecting software package MDR」 and 「Drawing·analyzing software package MDV」 into the computer.



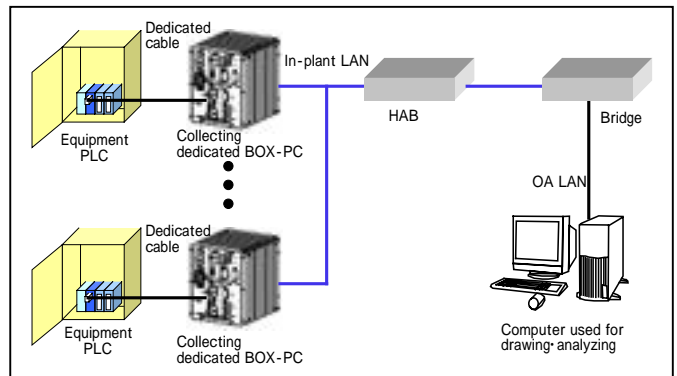
Structure . In case collecting using Windows 95 notebook computer, etc.
 Install 「Collecting software package MDR」 for Windows 95 version into notebook computer and additionally install 「Drawing·analyzing software package MDV」 into another personal computer.
 Collecting is executed using MDR notebook computer and drawing·analyzing are executed using MDV personal computer.



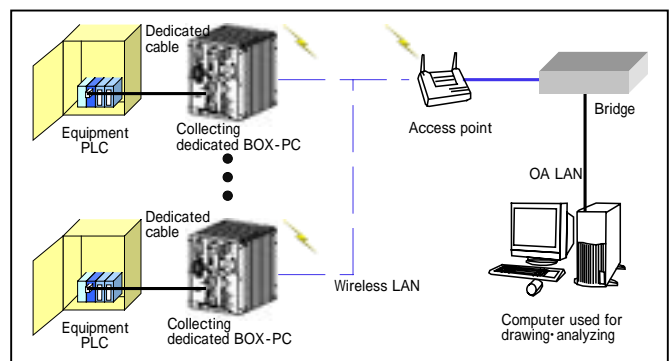
Structure . In case equipment information collecting dedicated BOX-PC (MDR) is used
 Install 「Drawing·analyzing software package MDV」 into personal computer. And collecting is made using collecting software package installed 「BOX-PC for collecting」 and drawing·analyzing is executed using MDV personal computer. (MDR is sold separately.)



Structure . In case collecting information using network environment (wired)
 Installation is the same with structure . LAN setting of equipment information collecting dedicated BOX-PC (permanent installation type) is executed and drawing·analyzing is executed by transferring collected equipment information to MDV installed another personal computer by way of LAN. (Optional device is required when network is used.)



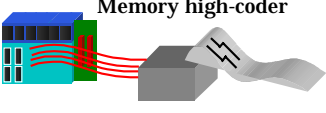
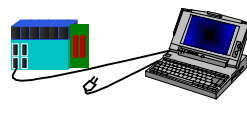
Structure . In case collecting information through network environment (wireless LAN)
 Installation is the same with structure . Wireless LAN setting of equipment information collecting dedicated BOX-PC (permanent installation type) is executed and drawing·analyzing is executed by transferring collected equipment information to MDV installed another personal computer by way of wireless LAN. (Optional device is required when wireless LAN is used.)



(3) . Feature of e-p@k

. Connection to PLC is easy

Information shall be collected making targeted equipment actually operating by directly connecting PLC (Programmable Logic Controller) that controls the equipment actually when information of production process is collected. In this regard, only connection of dedicated cable to CPU card in PLC completes wiring. Such equipment modifications as additional wiring for link card and addition of ladder software are **not required**.

[Conventional]	[e - p @ k]
 <p>Memory high-coder</p> <p>35 [H]</p> <p>Preparation 10H Collecting 5H Editing 20H</p> <p>Following works are required to observe data:</p> <ul style="list-style-type: none"> • Addition of output card to equipment PLC • Wiring of memory high coder • Document editing based on recorder paper 	 <p>1 [H]</p> <p>Preparation 0.35H Collecting 0.15H Editing 0.50H</p> <p>Only following works just enough if e-p@k is installed:</p> <ul style="list-style-type: none"> • Only wire connection to periphery tool connection I/F provided at CPU of PLC is just enough. • Maximum 300 points (word) regardless device • Data is displayed on personal computer.

. Information collecting availing network is possible.

Data collecting from office is possible without going off to production plant when [e-p@k](#) is used under LAN environment.

. Various analysis tools allowing the support for operation rate improvement activity

Drawing·analyzing tool can provide such abundant observable methods as 『Cycle chart』 and 『Gantt chart』, real time drawing of these charts, CSV conversion, and chart conversion of Microsoft® Excel.

. Responding to various languages such as Japanese, English, and the third language

Duplicated purchasing for each language: Japanese version for domestic use and English version for overseas is not required. Changing over from Japanese to English is provided

(4) . Corresponding PLC maker and model name of [e-p@k](#)

Maker	Corresponding model name
MITSUBISHI Electric Co., Ltd.	A series, Q series, Q-A series, FX series (only software packager version)
OMRON Co., Ltd.	CS series, CV series, CJ series, C series, series CQM1 series, CPM series
Sharp Co., Ltd.	JW series
Allen-Bradley	SLC500 series

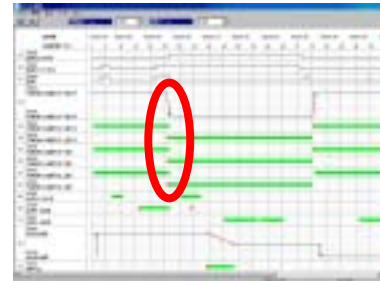
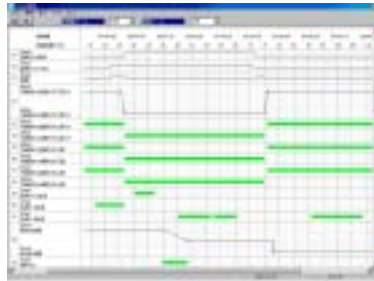
Maker name and product name are brand or registered brand of each company.

Model name of PLC that is currently not yet responding is under developing. Inquire to our company if you need to know current developing state.

(5) . Observable contents through e-p@k

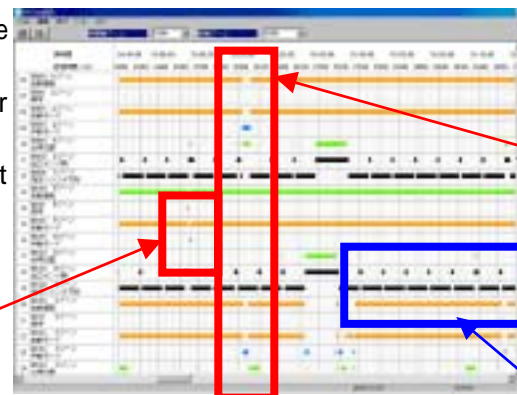
. Cycle chart

Controlled operation state can be displayed as cycle chart using production equipment PLC. Also registering standard data and superposing it into current operation state allows you operation difference at error state.



. Gantt chart

Actual operation state of production process can be displayed by collecting equipment operation state. Gantt chart also provides relation before and after occurrence of some action in visual state. (Gantt chart also can be outputted using Microsoft® Excel 2000.)



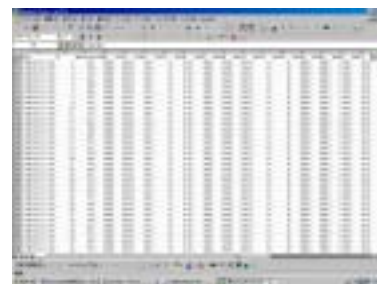
Error occurrence

Under setting-up operation

Normal operation

. Collecting data

Collected data can be converted into file format (CSV file) of Microsoft® Excel.



. Analyzing data

You can find the key to improve operation rate from inclination of equipment by availing Machine data analyzer software of e-p@k series. (Detail is referred to Machine data analyzer software.)



1 - 2 . e - p @ k compatible type

(1) . e-p@k MDR (S)-3004 compatible type

Computer main body	DOS/V machine equipped processor of more than 300 MHz (more than 500 MHz recommended)
OS	Windows98 SE, WindowsNT SP6, Windows2000 SP4, WindowsXP SP1a
Hard disk	Free capacity of hard disk required to install is about 100 MB
Memory	More than 128 MB (more than 256MB recommended)
Screen display	VGA more than 640 x 480 (SVGA more than 800 x 600 recommended)
Application	Internet explorer Microsoft R IE 5.5 SPI later is required.
Media	CD-ROM

Formal notation of Windows 98 is Microsoft® and Windows®98 operating system.
 Formal notation of Windows NT is Microsoft® and WindowsNT® operating system.
 Formal notation of Windows 2000 is Microsoft® and Windows® 2000 operating system.
 Formal notation of Windows XP is Microsoft® and Windows®XP operating system.



[Caution] Network adapter not equipped personal computer is not responded.

(2) . e-p@k MDR (S)-3004 compatible type (at Windows 95 installed)

Computer main body	DOS/V machine equipped processor of more than 300 MHz (more than 500 MHz recommended)
OS	Windows 95 OSR2 later
Hard disk	Free capacity of hard disk required to install is about 100 MB
Memory	More than 64 MB (more than 128MB recommended)
Screen display	VGA more than 640 x 480 (SVGA more than 800 x 600 recommended)
Application	Internet explorer Microsoft R IE 5.5 SPI later is required
Media	CD-ROM

Formal notation of Windows 95 is Microsoft® and Windows® 95 operating system.



[Caution] Network adapter not equipped personal computer is not responded.

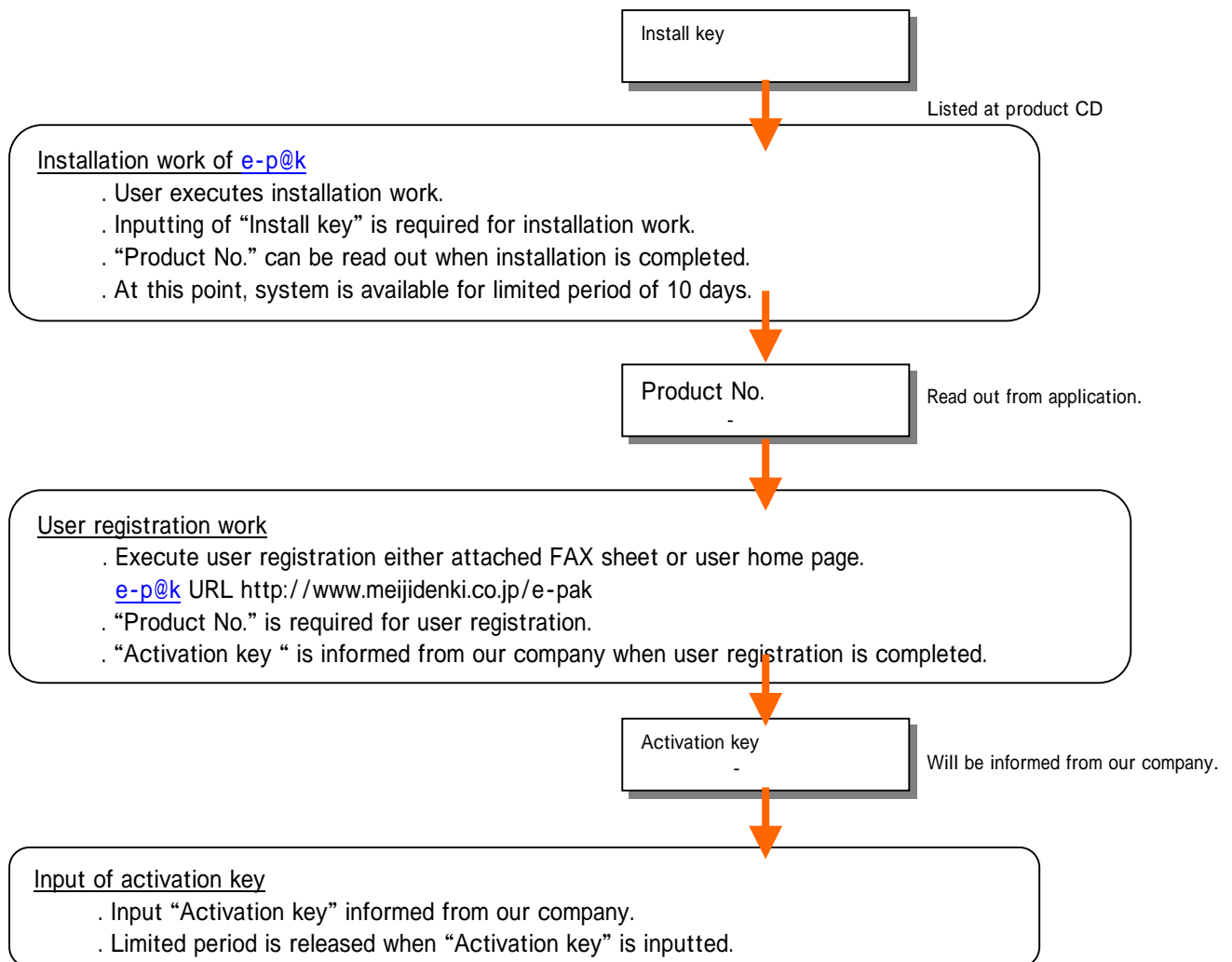
(3) . e-p@k MDR (S)-3004 compatible type

Computer main body	DOS/V machine equipped processor of more than 500 MHz recommended
OS	Windows 98 SE, Windows NT SP6, Windows 2000 SP4, Windows XP SP 1a
Hard disk	Free capacity of hard disk required to install is about 64 MB
Memory	More than 128 MB (more than 256MB recommended)
Screen display	VGA more than 640 x 480 (SVGA more than 800 x 600 recommended)
Application	Microsoft® Excel 2000 later is required for Excel output. Internet explorer Microsoft R IE 5.5 SPI later is required.
Media	CD-ROM

Formal notation of Windows 98 is Microsoft® and Windows®98 operating system.
 Formal notation of Windows NT is Microsoft® and WindowsNT® operating system.
 Formal notation of Windows 2000 is Microsoft® and Windows® 2000 operating system.
 Formal notation of Windows XP is Microsoft® and Windows®XP operating system.

1 . Flow of installation of e-p@k

Installation and user registration, etc. of [e-p@k](#) and flow of installation are explained.
Such various service as limited period releasing and service down load, etc. are serviceable by user registration.



Refer to 「Install Manual」 for detail of Install/Uninstall.



[Caution] Stop all programs before installation is made,
otherwise installation could not be executed normally.

1 . Explanation of e-p@k launcher

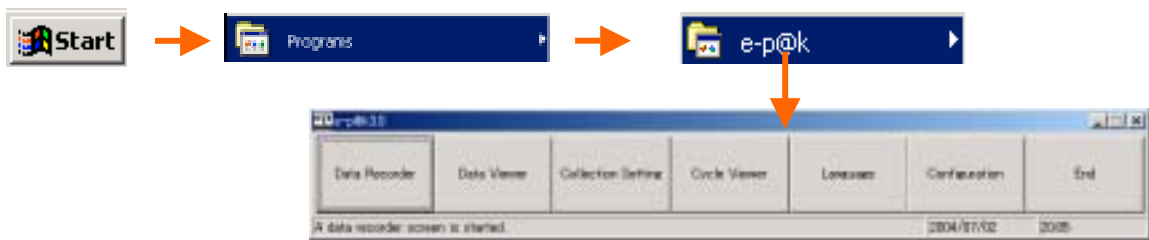
Initial procedure of e-p@k MDR installed personal computer is explained here.



[Caution] Note that e-p@k shall be started after all programs have been stopped otherwise sometimes normal operation is prevented.

1 - 1 . Starting of e - p@k launcher

. e-p@k is started from 「Start」 「program」 「e-p@k」 「e-p@k Launcher」.



. Initial screen (launcher) is displayed when e-p@k is started.

1 - 2 . Explanation of initial screen(launcher) of e - p@k

(1) . Data Recorder



Data is collected from PLC. e-p@k collecting portion software installed personal computer is operated. Details are referred to 「2. Explanation of data recorder function」.



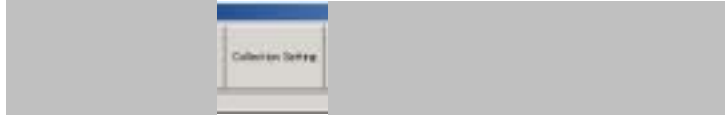
[Caution] e-p@k collecting portion software is required separately for data collecting.

(2) . Data viewer



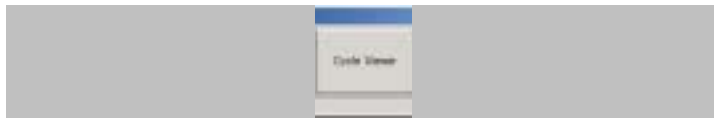
Raw data of collected result data (EPD) is reviewed or converted into CSV file.
Details are referred to 「3. Explanation of data viewer function」.

(3) . Collection Setting



Collecting address information data (EPS) is prepared.
Details are referred to 「4. Explanation of collection setting function」.

(4) . Cycle viewer



Drawn in real time in conjunction with drawing of collected data and [e-p@k](#) collecting portion.
Preparation of drawing setting data (EPG) to determine drawing method and arranging order based on collected result data (EPD).Details are referred to 「5. Explanation of cycle viewer function」.

(5) . Language



Displaying language used in [e-p@k](#) is changed over.Changing over language are Japanese, English, and other language (comment inputting is required).Details are referred to 「6. Explanation of language function」.

(6) . Configuration



Setting at drawing and setting of log level is executed.
Details are referred to 「7. Explanation of Configuration function」.

(7) . End



Terminates [e-p@k](#) initial screen (launcher)

2 . Explanation of data recoder function

Collecting setting is executed connecting to [e-p@k](#) collecting portion. Refer to separate sheet 『[e-p@k](#) Machine Data Recorder User's Manual』 concerning operation method of collecting.



Click 「Data Recorder」 of [e-p@k](#) initial screen (launcher).

(1) . Collecting portion setting by WEB browser

Collecting portion software executes various settings·references in data collecting at own machine and host from WEB browser on Ethernet using HTTP protocol server function.

(2) . WDisplay method of WEB page

. When collecting portion and drawing portion are installed into the same personal computer

(Local Host) IP address is set at “127.0.0.1” when collecting portion software was installed into the same personal computer that drawing portion software was installed.

Shifts to data collecting screen when either Data Recorder is clicked or <http://127.0.0.1> is URL specified using WB browser.



. When collecting portion and drawing portion are installed into different personal computers.

Shifts to data collecting screen when IP address is URL specified as [http://](http://. . . .) using WB browser.



[Caution] Display as shown in right figure will be appeared when accessing is made to the personal computer that collecting portion software is not installed. Please access using correct IP.



3 . Explanation of data viewer function

Dater viewer provides following contents of collected result data (EPD) in observable form.

- Condition (Maker name· model of connected PLC, sampling interval, collecting starting time, completed time, and number of data) at collecting.
- Address and data (decimal number· binary number) of collected result data (EPD)
- Cutting off / combining of collected result data and conversion into CSV file of collected result data (EPD)
- Plural collected result data (EPD) display


Click 「Data viewer」 of e-p@k initial screen (launcher).

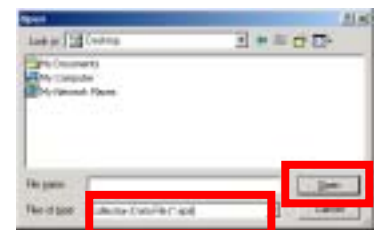


「Machine data viewer」 is displayed as shown in right.

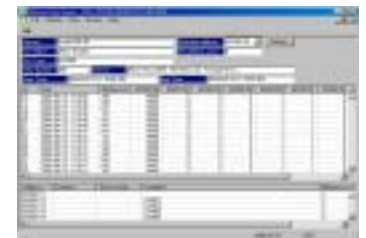


(1) . Selection of collected result data EPD file

Click icon  at left top of 「Machine viewer」 screen or make 「Collecting data file selection」 dialogue displayed from 「File」 「Open」 to select read out required collected result data EPD file.



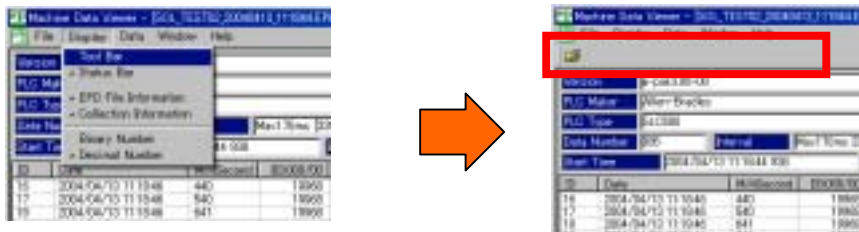
When read out required collected result data EPD file was selected click 「Open」 then selected collected result data EPD file is displayed.



(2) . Customization of 「Machine data viewer」 screen

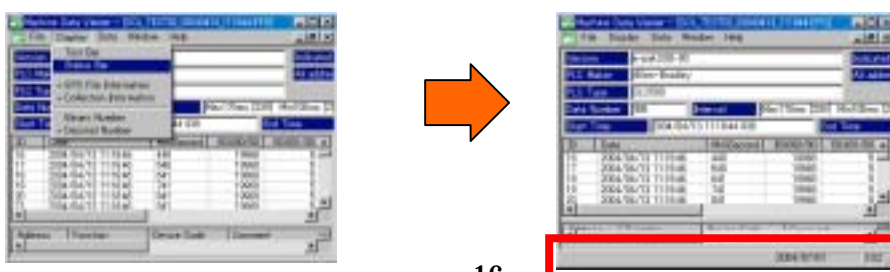
. Display of tool bar

Displays tool bar on screen using 「Display」 「Tool bar」.



. Display of status bar

Displays status bar on screen using 「Display」 「Status bar」.



(3) . Display of collected result data EPD file information

Displays information of collected result data EPD file on screen using 「Display」 「EPD file information」.



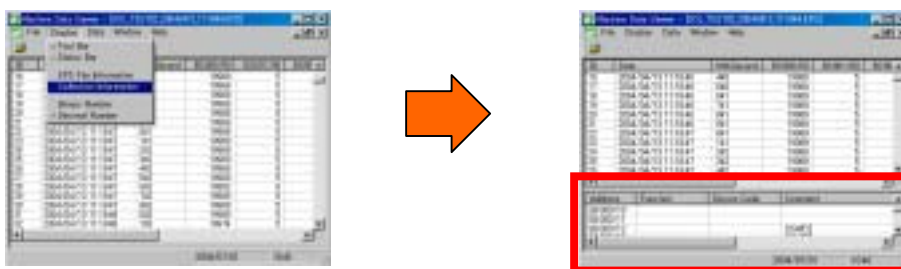
- Version: Displays version of e-pak at collecting from collected result data EPD file
- PLC Maker: Displays maker of PLC from collected result data EPD file
- PLC Type: Displays model of PLC from collected result data EPD file
- Data Number: Displays data number of collected result data EPD file
- Interval: Displays sampling interval (maximum, minimum, average) of collecting.
- Start time: Displays collecting start time of data.
- End time: Displays collecting termination time of data.
- All address count: Displays all address number of collected result data EPD file.
- Indicated address: Selects address to start display.
- Refresh button: When clicked display started from selected address at display start address.



[Caution] Total display permitted numbers at the same time is 128. Error message 「All the addresses are not displayed.」 is displayed when total address number is more than 128. Select address from display starting address and click “Display renewal” button when address later than 129 is required to display.

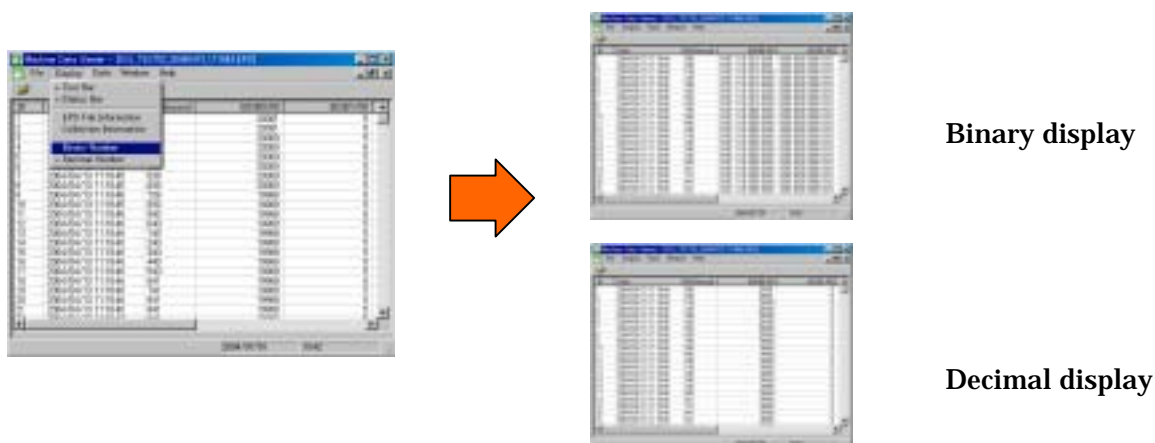
(4) . Display of collecting information

Displays information of collected result data (EPD) on screen using 「Display」 「Collection information」.



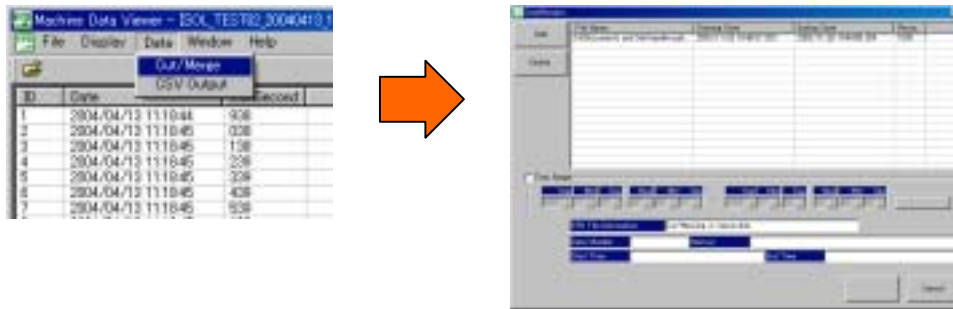
(5) . Changeover of collected result data (EPD)

Changes over display of displaying collected result data (EPD) on screen into binary number or decimal number using 「Display」 「Binary Number」·「Decimal Number」.



(6) . Cut / Merge of collected result data (EPD)

Cutting and combining are executed for on screen displaying collected result data (EPD).

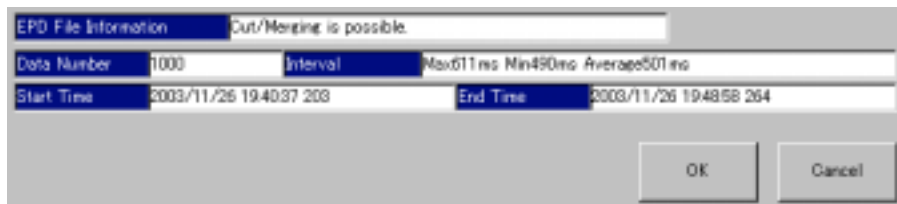


. Cutting off of collected result data (EPD)


- Click time range then cutting off time becomes enable then specify cutting off time.
- When cutting off time is specified then **Cut Information** button becomes enable.



- At this time, lick **Cut Information** button. In case specified time becomes error, specify correct cutting off time again as "Cut/Merging is impossible" is displayed in 「EPD file information」 column.
- In case specified time is correct information of cutting off data is displayed then confirm the data and click **OK** button.



- Finally, enter saving destination and file name to save changed data.

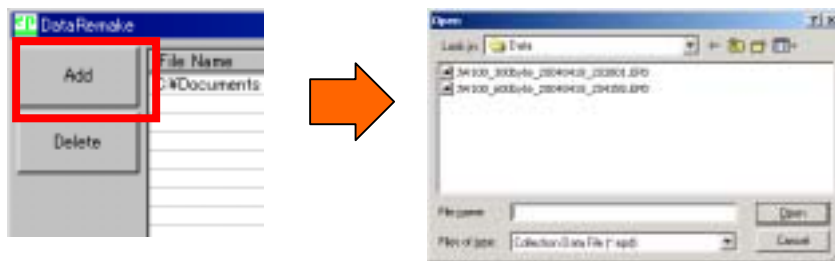
 [Caution] Character other than 「!」, 「~」, 「-」, 「_」 must not be used as file name.



· Combination of collected result data (EPD)

Combining of collected result data (EPD) that is displayed on screen is executed.

Click **Add** button to select combining intended file. Selection of more than two files is required to combine.



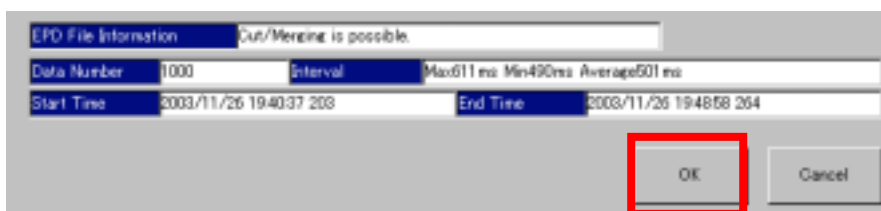
· Select combining required file using 「EPD file selection」 screen.

Select EPD file and click **Delete** when added collected result data EPD is deleted.

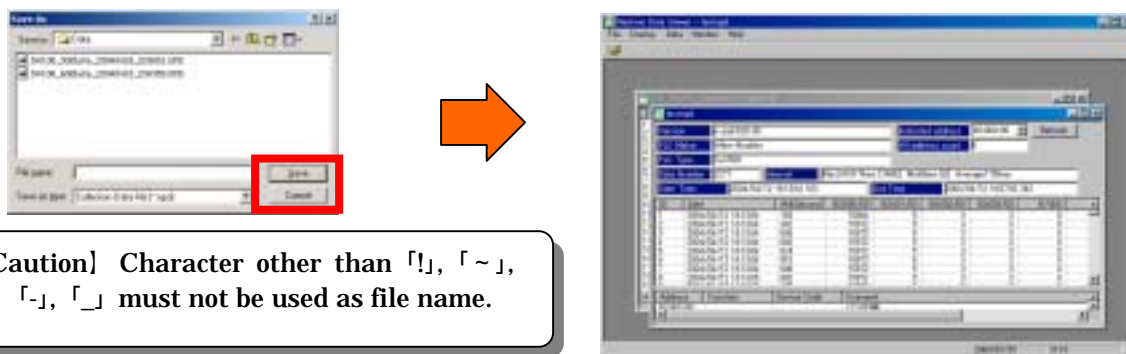
· Enter check into time range and set day and time when combined data is prepared only within time range (useless time is eliminated).




· As [Cut/Merging is possible] is displayed, click **OK** when combining is possible (There is cause-and-effect relationship).




· Click **OK** then click **Save** determining file name after combination.



 [Caution] Character other than 「!」, 「~」, 「-」, 「_」 must not be used as file name.

· Combined collected result data (EPD) is displayed after combination.

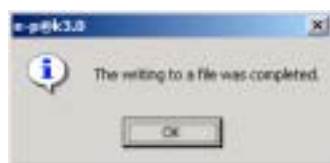
 [Caution] Different PLC types cannot be combined in such cases as more than 24 hours time gap are present between combining files, collecting addresses are different, date is duplicated, and their PLC models are not the same.

(7). CSV output

Collected result data (EPD) displayed on screen is converted into CSV data using 「Data」 「CSV output」.



- Enter file name and click **Save**.
- Screen turned to following display when normally converted into CSV file.



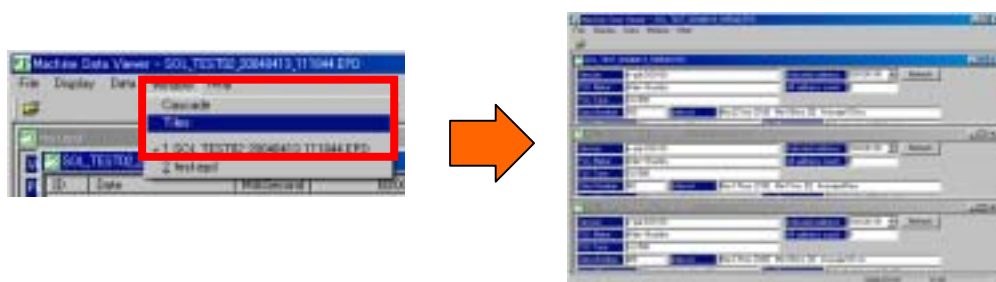
(8). Window

Display method of collected result data (EPD) displayed on screen is changed by 「Window」.

- Cascade



- Tiles

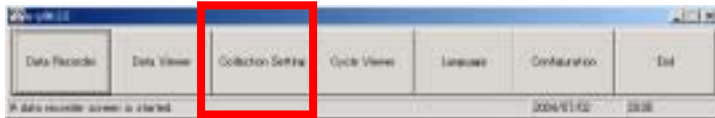


(9). Termination of 「Machine data viewer」

Click 「File」 「Exit」 or click closing button at right top of screen when 「Machine data viewer」 screen is terminated.


4 . Explanation of collection setting function

Address information data (EPS) of collecting PLC using e-p@k is set. Click 「Collection Setting」 of e-p@k initial screen (launcher).



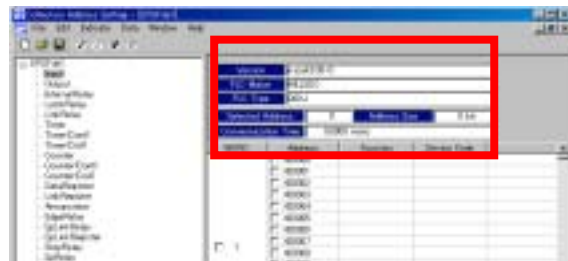
「Collection Address Setting」 screen is displayed as shown in right.

(1) . New preparation of address information data (EPS)

- Click icon  on 「Collection Address Setting」 screen or select 「File」 「New」.
- Execute selection of PLC type.



- Device list of selected PLC type is displayed.



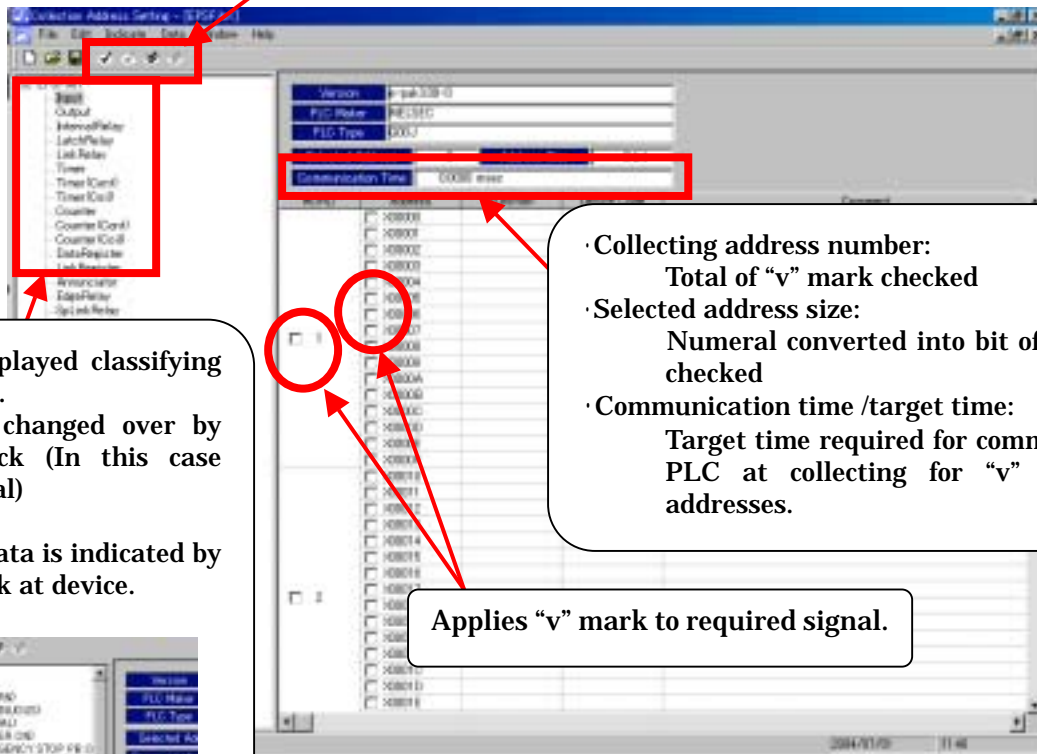
- UniDraf (Electric CAD made of SHINWA Electric Machinery) and comment data of PLC comment can be diverted. Select file and click **Open** using 「File」 「Import Comment data」.




- **EPS Comment Data:** Comment data of previously prepared address information data (EPS) is diverted. Extension is “eps”.
- **UniDraf Comment Data:** Comment data prepared by electric CAD is diverted. Extension is “ctb”.
- **MITSUBISHI Comment Data:** PLC comment data made of MITSUBISHI Electric is diverted. Extension is “csv”.

· Enter “v” check mark at collecting required address.

1



List is displayed classifying into device.
Device is changed over by double click (In this case input signal)
Checked data is indicated by double click at device.



· Collecting address number:
Total of “v” mark checked
· Selected address size:
Numeral converted into bit of total “v” mark checked
· Communication time /target time:
Target time required for communication with PLC at collecting for “v” mark checked addresses.

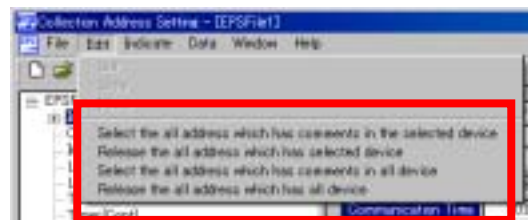
Applies “v” mark to required signal.

1



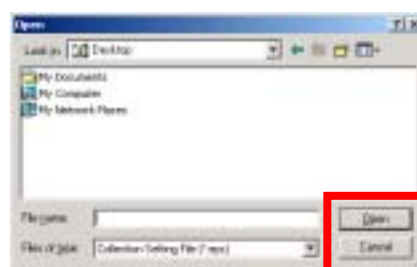
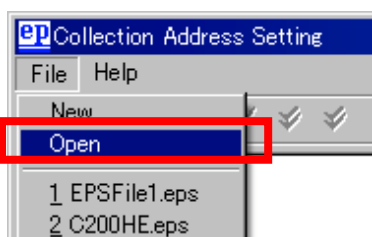
- Comment entered addresses at selecting device are all “v” mark entered.
- Selections by “v” mark check at selecting device are all released.
- Comment entered all device addresses are selected by “v” mark check.
- All selections by “v” check mark are released.

This setting also can be selected from [Edit].

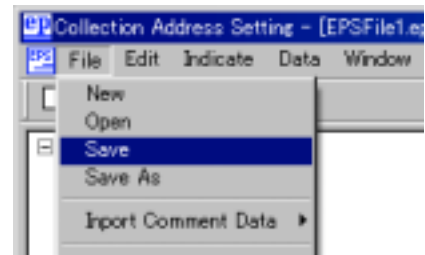


(2) . Open existing address information data (EPS)

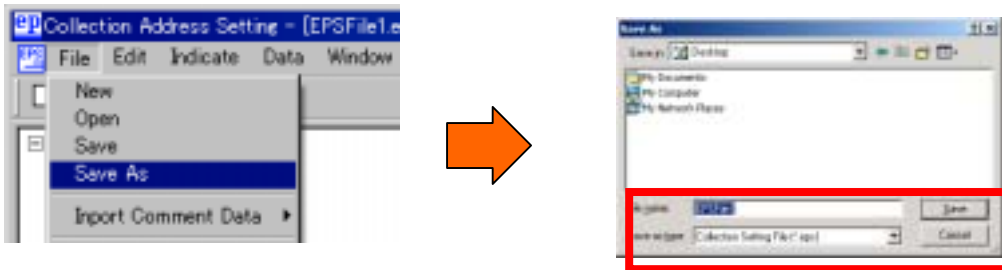
Previously prepared address information data (EPS) file is read out by 「File」 「Open」.




- (3) . Overwrite-saving of address information data (EPS)
Make prepared address information data (EPS) file overwrite-save.

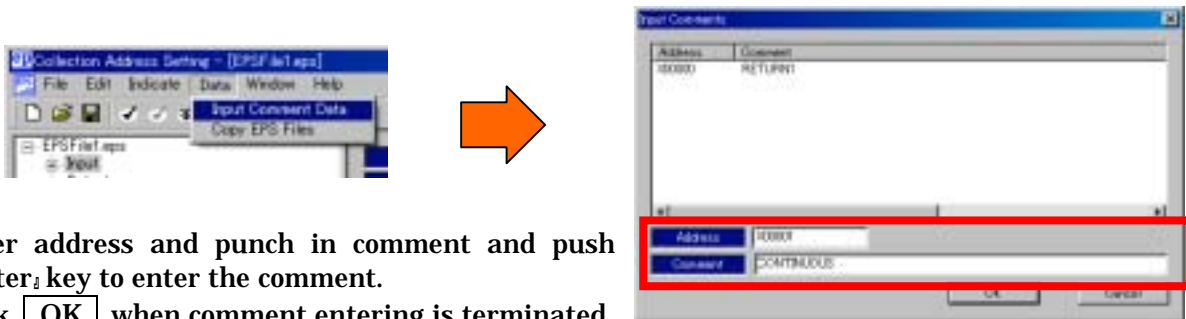


- (4) . Naming and saving address information data (EPS)
Make prepared address information data (EPS) save with naming using 「File」 「Save As」.



 [Caution] Character other than 「!」, 「~」, 「-」, 「_」 must not be used as file name.

- (5) . Comment entering
Comment can be entered directory when comment cannot be entered from CAD, etc. using 「Data」 「Input Comment Data」.

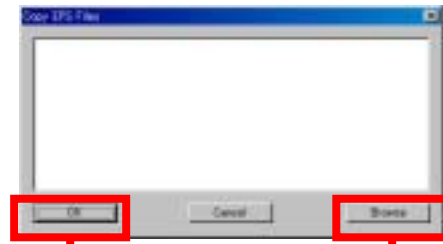


Enter address and punch in comment and push 「Enter」 key to enter the comment.
Click **OK** when comment entering is terminated.

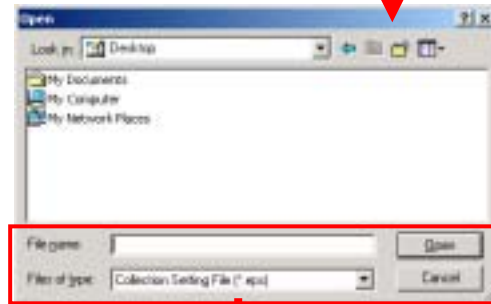
Comment entering can be executed by double clicking the comment column displayed on device display screen.

WORD	Address	Function	Device Code	Comment
	<input type="checkbox"/> X0000			RETURN
	<input type="checkbox"/> X0001			CONTINUOUS
	<input type="checkbox"/> X0002			MANUAL
	<input type="checkbox"/> X0003			MASTER ON
	<input type="checkbox"/> X0004			EMERGENCY STOP PB OK(MAIN)

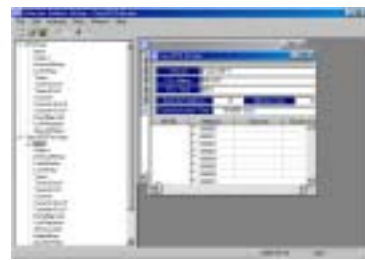
- (6) . Copy of address information data (EPS) file
 Previously prepared EPS file can be copied using 「Data」 「Copy EPS File」



Click **OK** when copying required file is already selected but click **Browse** if selection is required.



Set file name after copying and click **Open**



- (7) . Display of address information data (EPS)
 Using 「Window」 display method of address information data (EPS) is changed.
 . Cascade



. Tiles



- (8) . Termination of 「Collection address Setting」 screen
 Click 「File」 「Exit」 or click close button at right top of the screen when 「Collection Address Setting」 screen is terminated.

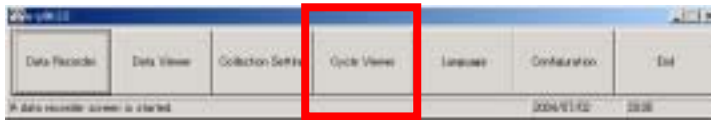


[Notices on PLC in each company]

- **FX series made of MITSUBISHI Electric**
 - . Two (2) bits counter cannot be counted.
 - . MDR (BOX-PC) cannot respond to collecting. Make collecting using MDV installed personal computer.
- **JW series made of Sharp Corporation**
 - . Collecting cannot execute in expansion relay area.
- **SLC series made of Allen-Bradley**
 - . Data with code cannot handle in MDR. Collection is possible but cannot be used for trigger.

5 . Explanation of cycle viewer function

Collected data and under collecting data using **e-p@k** from equipment PLC can be drawn.
Click 「Cycle Viewer」 of **e-p@k** initial screen (launcher).

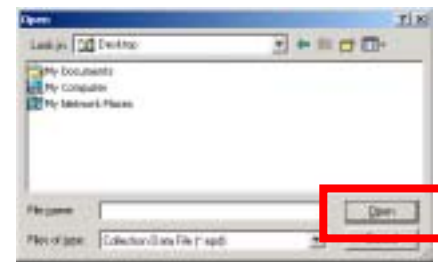


5 - 1. Collection data selection

(1) . Selection of collected result data (EPD) file

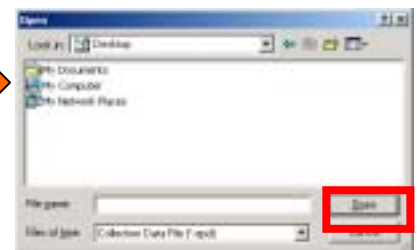
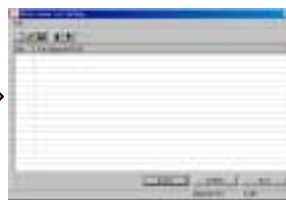
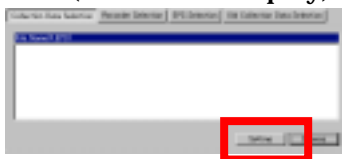


. Click **Browse** to select collected result data (EPD) file when only 1 file is drawn.



Select EPD file and click 「Open」.

. Click **Setting** and select EPD file when plural data are drawn using multi-viewer (continuous display).



Select EPD file and click **Open**.

Details are referred to 「(12). Multi-viewer」.

(2) . Selection of reference data

Reference data is set when drawing is made overlapping with reference data.



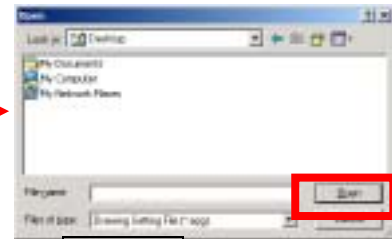
Select file using **Browse** and click **Open** to select.
Click 「Cancel」 when selected file is required to cancel.



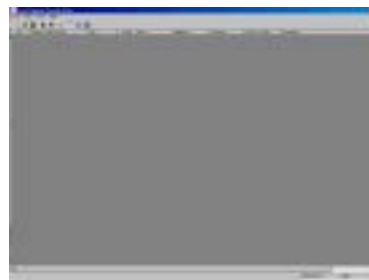
(3) . Cycle diagram setting selection
 Drawing method and arranging order are set.



Click **Setting** to make preparation screen display when EPG file is newly prepared.



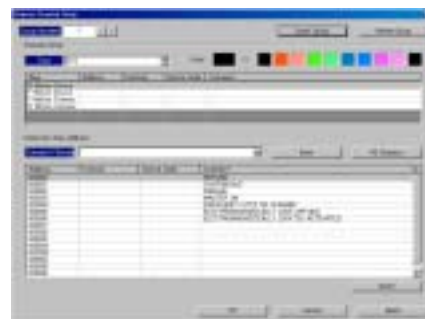
Click **Browse** and select EPG file when previous prepared EPG file is selected.



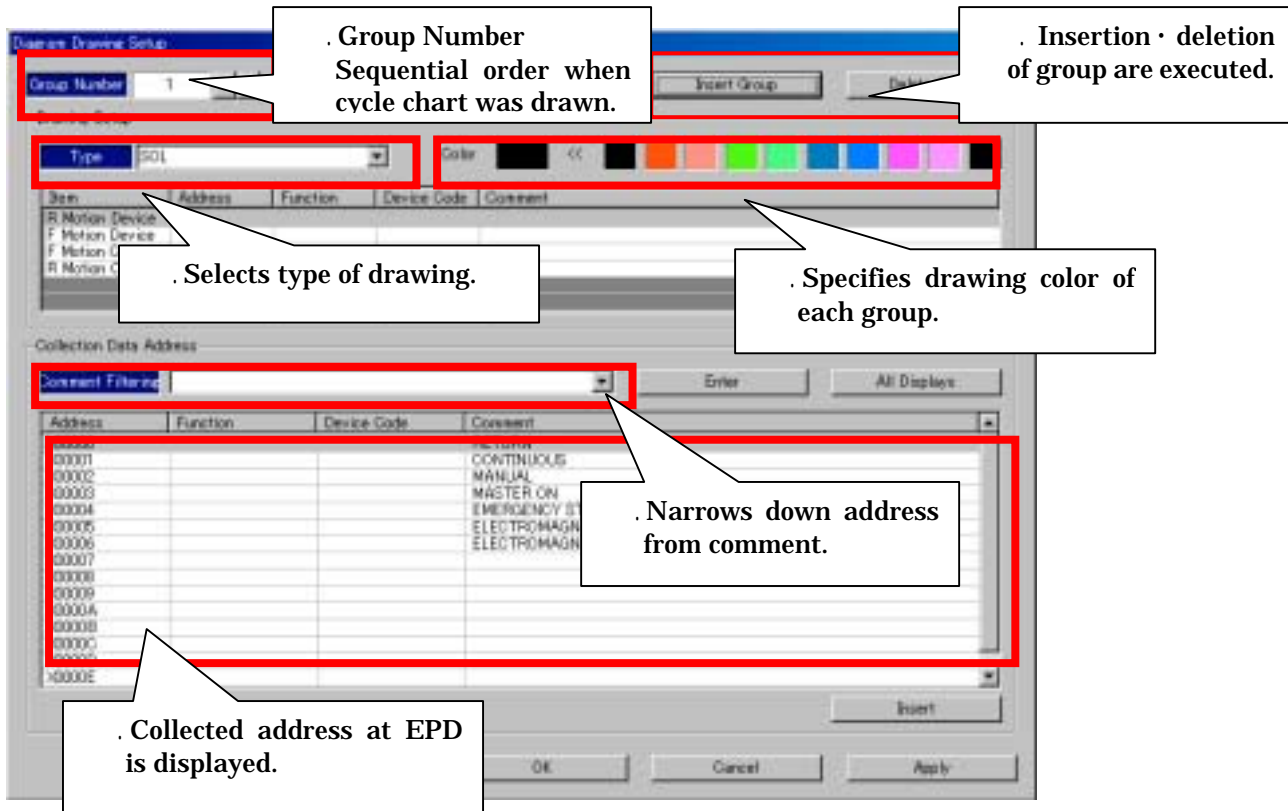
Refer to (4) paragraph EPG file preparation.

(4) . Preparation of drawing setting data (EPG) file
 Prepare EPG file when **Setting** is selected at above cycle diagram setting selection.

Prepare drawing method and arranging order of collected data initially.
 Click following button and start preparation of drawing setting data (EPG) file when new preparation is made.



EPG detail setting screen is opened.



Group Number

Collected data can be displayed classifying by group when they are drawn. This group No. is displaying order when they are drawn.

Insert group / delete group

Click **Insert group** to insert new group between groups and select group No. and click **Delete group** when deletion of group is required.

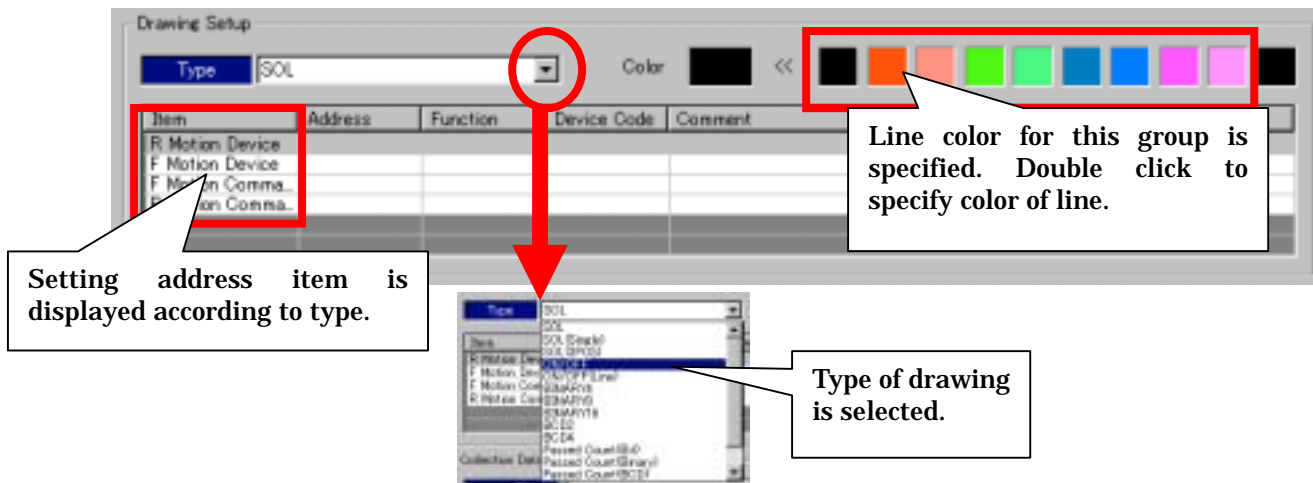


Insert Group:
Delete Group:

new group is added to the next of specified group No.
the group specified group No. is deleted.

Drawing Setup

Type and color for each group are set.



·Display at SOL error

Drawing of normal cycle diagram cannot be executed unless normal signal of SOL is not entered due to various errors of equipment.

Display example at error signal and error phenomena are shown as following.

Example. Chattering occurrence at sensor signal

(In case of single solenoid or 3 position solenoid)

No chattering



Chattering occurrence



(In case of 2 position solenoid)

No chattering



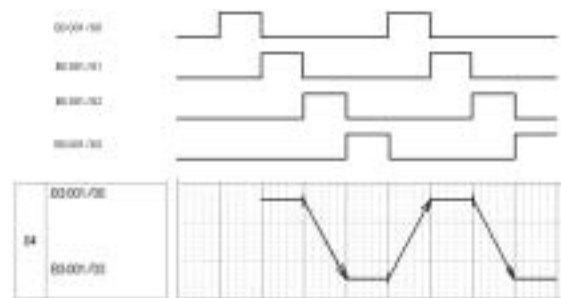
Chattering occurrence



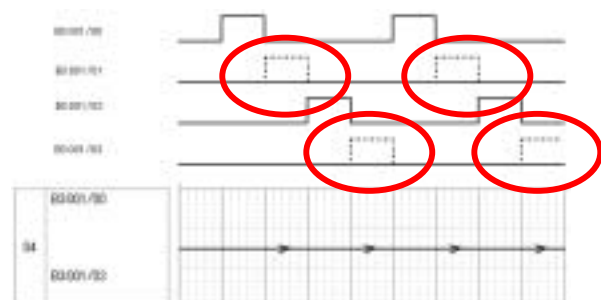
Example. No entering due to wire breakage of sensor signal

(In case of single solenoid)

Cycle chart at normal

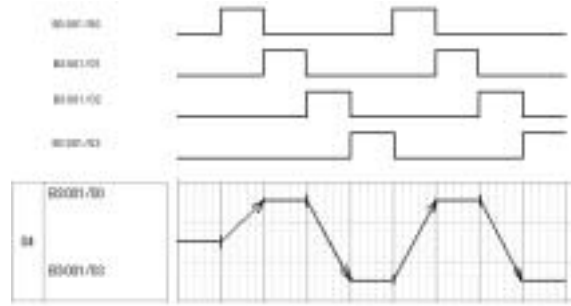


Cycle chart at error

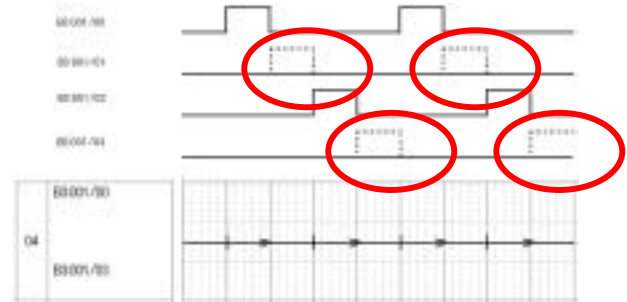


(In case of 2 position solenoid)

Cycle chart at normal

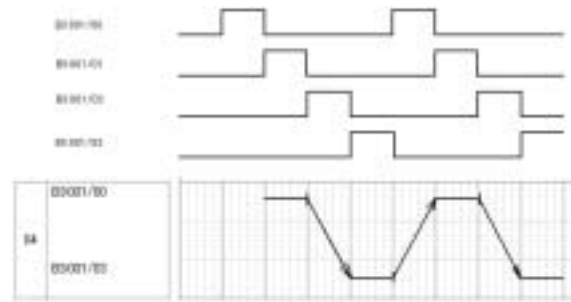


Cycle chart at error

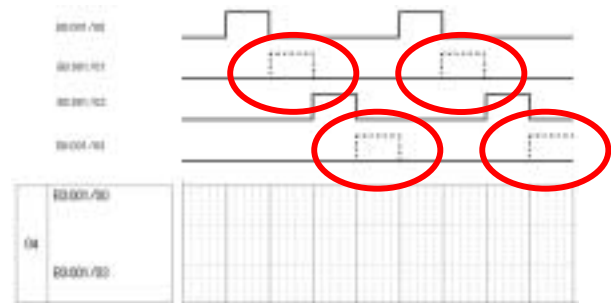


(In case of 3 position solenoid)

Cycle chart at normal

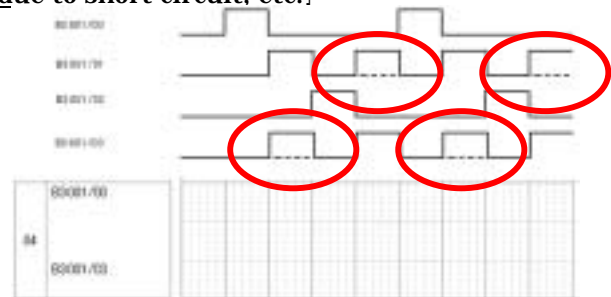


Cycle chart at error



Example. Sensor signals are turned on due to short circuit, etc.

Cycle chart at error



Other example of operation failure due to bug in sequence ladder

Cycle chart at normal



Example. In case of sudden operation end signal entering with the state operation indication no turning on (2POS)

Cycle chart at error



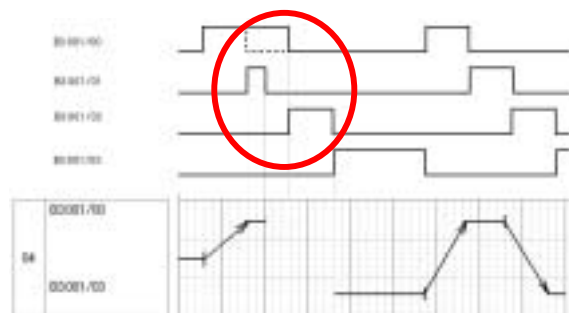
Example. In case of operation end signal out of position with the state operation indication no turning on (2POS)

Cycle chart at error



Example. In case of operation end signal out of position with the state operation indication no turning on (2POS)

Cycle chart at error

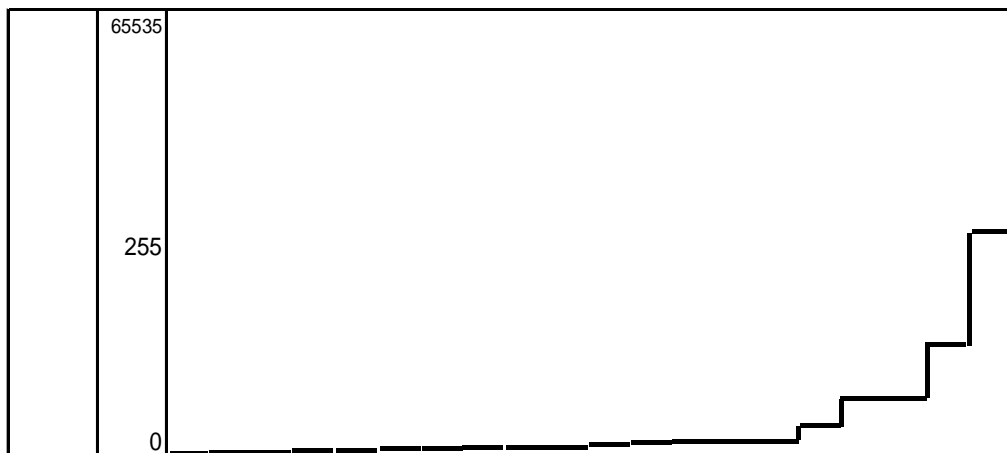


· Binary 16

Expression of decimal number from 0 to 65535 in 16 bits binary number with specified address at top

Address	+0	0	1	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	1
	+1	0	0	0	1	1	0	1	1	0	0	1	1	0	0	0	0	0	1
	+2	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	1
	+3	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1
	+4	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1
	+5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	+6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	+7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	+8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	+9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	+10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	+11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	+12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	+13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	+14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	+15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Value	0	1	1	2	3	4	6	7	8	9	10	15	16	16	16	32	64	64	128	255
-------	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	-----	-----



· Binary 8

Expression of decimal number from 0 to 255 in 8 bits binary number with specified address at top

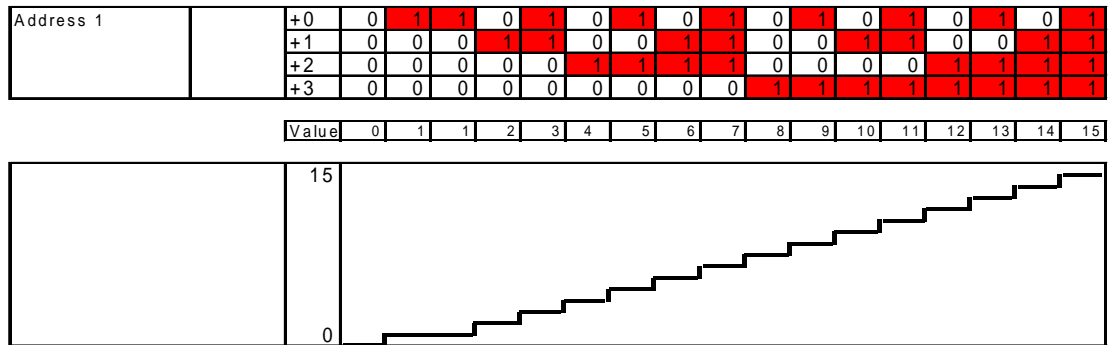
Address	+0	0	1	1	0	1	0	0	1	0	1	0	1	0	0	0	0	0	1
	+1	0	0	0	1	1	0	1	1	0	0	1	1	0	0	0	0	0	1
	+2	0	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	0	1
	+3	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1
	+4	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1
	+5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	+6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	+7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Value	0	1	1	2	3	4	6	7	8	9	10	15	16	16	16	32	64	64	128	255
-------	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	-----	-----



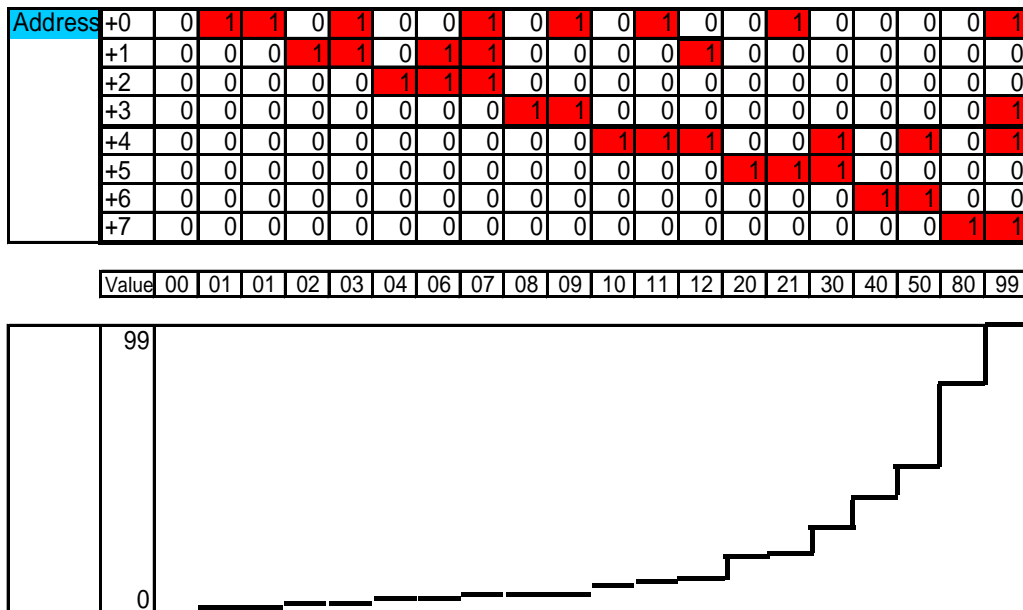
· Binary 4

Expression of decimal number from 0 to 15 in 4 bits binary number with specified



· BCD2

Expression of decimal number from 0 to 99 in 8 bits BCD 2 digits numeral number with specified address at top



・BCD4

指定したアドレスを先頭に16ビットをBCD4桁の数値として表現 (0から9999)します。

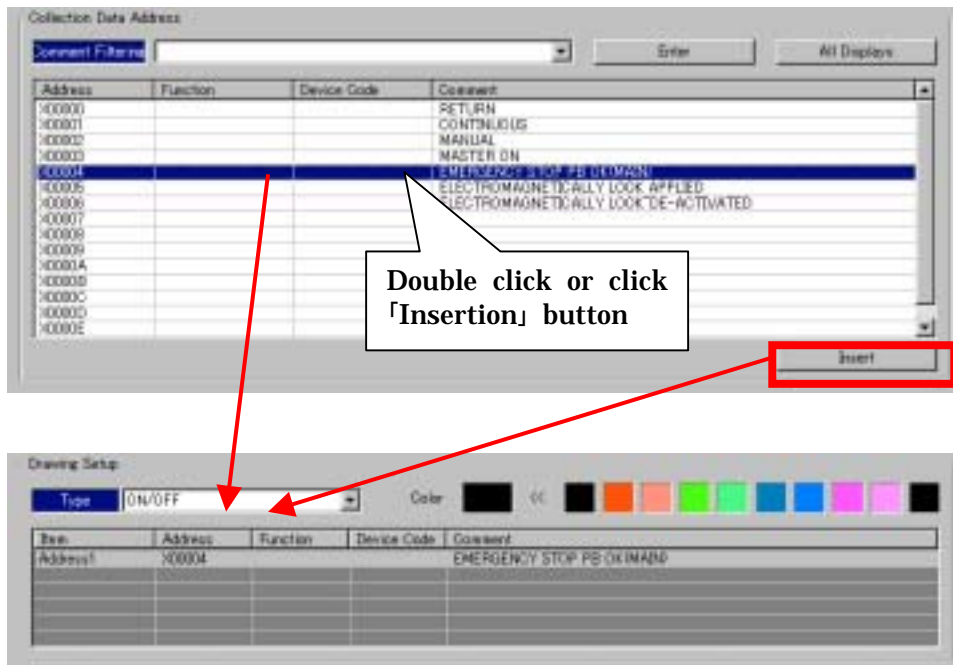
Address	+0	0	1	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1
+1	0	0	0	0	1	1	0	1	1	0	0	0	0	0	1	0	0	0	0	0
+2	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
+3	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
+4	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	1	0
+5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0
+6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
+7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Value	00	01	01	02	03	04	06	07	08	09	10	11	12	20	21	30	40	50	80	99
-------	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----



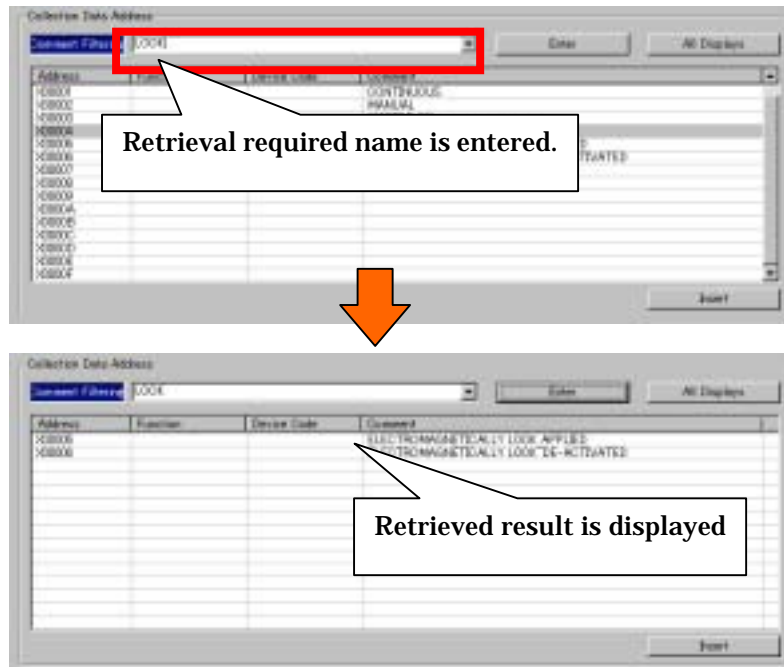
- ・Passed Count, Output Count
Specified address is counted and displayed.

Select address from address list of collecting data address and double click or click **Insert** to set.



. Comment filtering

Retrieval is possible making comment text as key. Required time for setting can be reduced by narrowing down address from retrieved result. Enter retrieving name into comment column and click **Enter**.



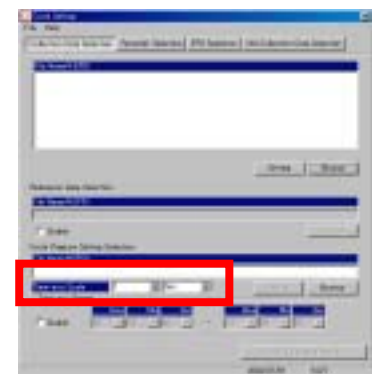
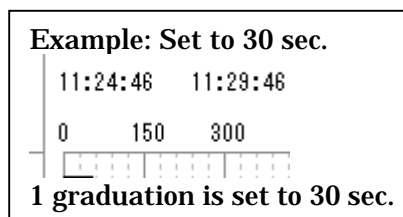
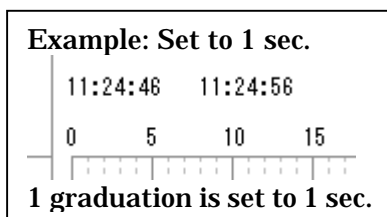
. Termination of setting

All Displays is clicked to return to previous display. Also click **Cancel** to discard the setting.



(5) . Time-axis Scale setting

Unit for one graduation shall be set for time axis at drawing. Setting allowed units for one graduation are 「1 sec. 2 sec. 5 sec. 10 sec. 30 sec. 1 min. 2 min. 5 min. 10 min. 30 min. 60 min.」.



(6) . Time-axis Range setting

Time axis display range at drawing is set.



- Invalid (Check of Enable is released.) all collected data range is drawn.
- Valid (Check of Enable is set.) specified time zone is drawn.

5 - 2 . Recorder selection

Recorder selection is selected when real time data drawing is required.

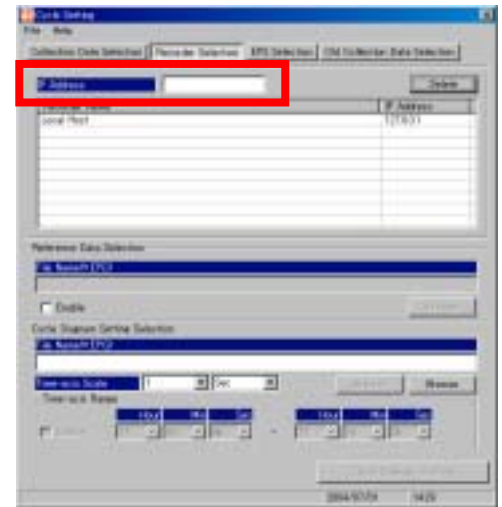
- (1) . Registration of personal computer connected to network.

IP address of personal computer on network is entered.

Re-registration is not required when collecting package software MDR (S)-3004 and drawing package software MDV-3004 are installed into one unit of personal computer because the personal computer is already registered and default value can be used without change.

Select personal computer from “Recorder name” column and click when deletion is required.

“Recorder name” = “Local Host” and “IP address”~ “127.0.0.1”



- (2) . Reference data selection

Refer to 「5-1. (2). Selection of reference data」.

- (3) . Cycle diagram setting selection

Refer to 「5-1. (3). Cycle diagram setting selection」.

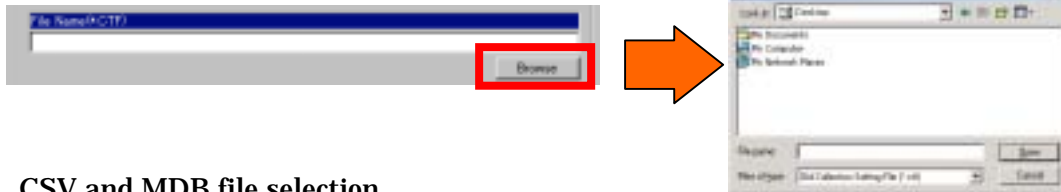
5 - 3. Old collecting data selection

Collected data by e-p@k Ver.2 series is drawn.



(1) . CTF file selection

Selects CTF. Click **Browse** and select collected result data (EPD) file.



(2) . CSV and MDB file selection

Select CSV and MDB file. Click **Browse** and select collected result data (EPD) file.



(3) . Reference data selection of CSV and MDB file

Reference data is set when drawing is made overlapping with reference data.



Click **Browse** and select file when selection is made.
Click **Cancel** when selected file is required to cancel.

(4) . Reference data selection

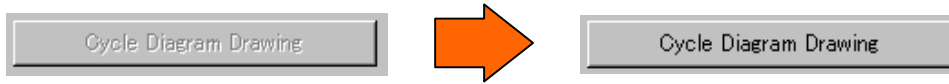
Refer to 「5-1. (2). Selection of reference data」.

(5) . Cycle diagram setting selection

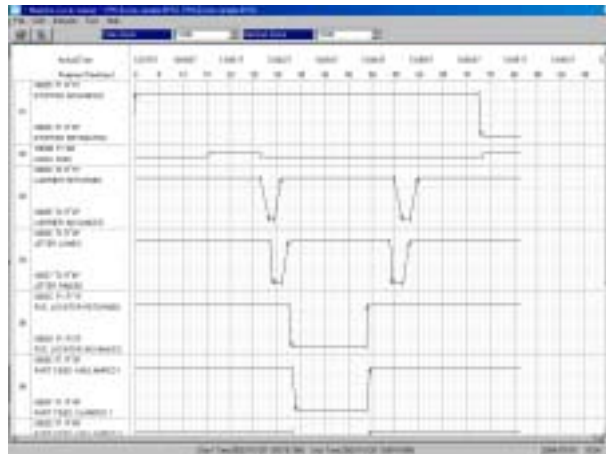
Refer to 「5-1. (3). Cycle diagram setting selection」.

5 - 4 . Cycle diagram drawing

When selection of displaying file is completed clicking of 「Cycle Diagram Drawing」 button becomes possible.




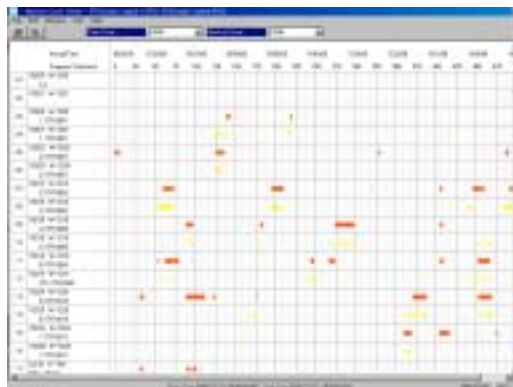
When 「Cycle Diagram Drawing」 button is clicked drawing screen is displayed as shown in following.




(1) . Excel output

Drawn data is displayed on Microsoft ® Excel 2000 by using 「File」 「Excel Output」 for display selected address by ON/OFF of drawing setting data (EPG)

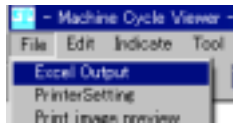
 **[Caution] Excel Output is possible when Microsoft ® Excel 2000 later version. Display by Excel output cannot be displayed such diagram as SOL.**



When is Excel used?

 Excel is used when such other than normal operating and cyclic movement information are collected. Converting collected result data into Excel readable data the data can be used as line operation daily report and presentation.

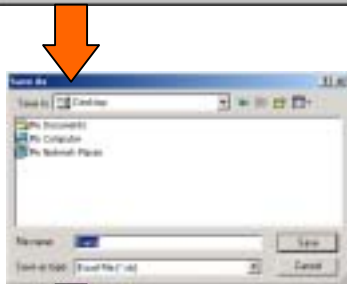
[Operation method]



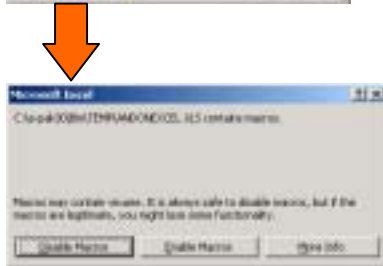
Click 「File」 「Excel Output」.



Display date of file and drawing time. Display is (1 ~ 24 hour) unit and automatically set according to time of the file.



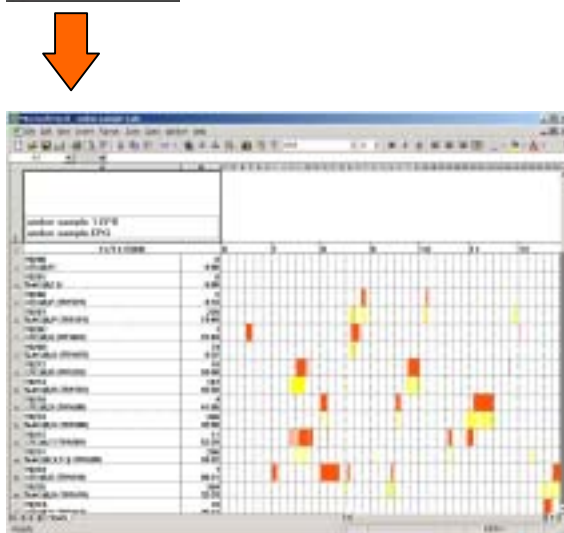
Specify saving destination. Set file name and click **Save**.



As Excel is started and macro screen is displayed then select **Disable Macros**.



“Output completion” message is displayed when Excel output is terminated.



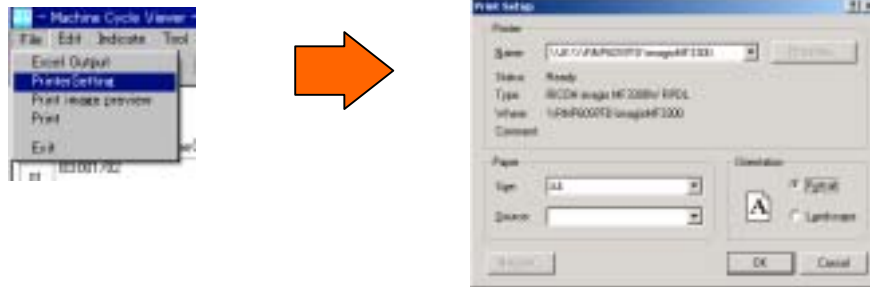
ON/OFF drawing is displayed when Excel outputted file is opened.



[Caution] Excel output is possible when 「Microsoft ® Excel」 is installed personal computer. Also version of 「Microsoft ® Excel」 must be 2000 later. (Version 95.97 cannot be applicable.)

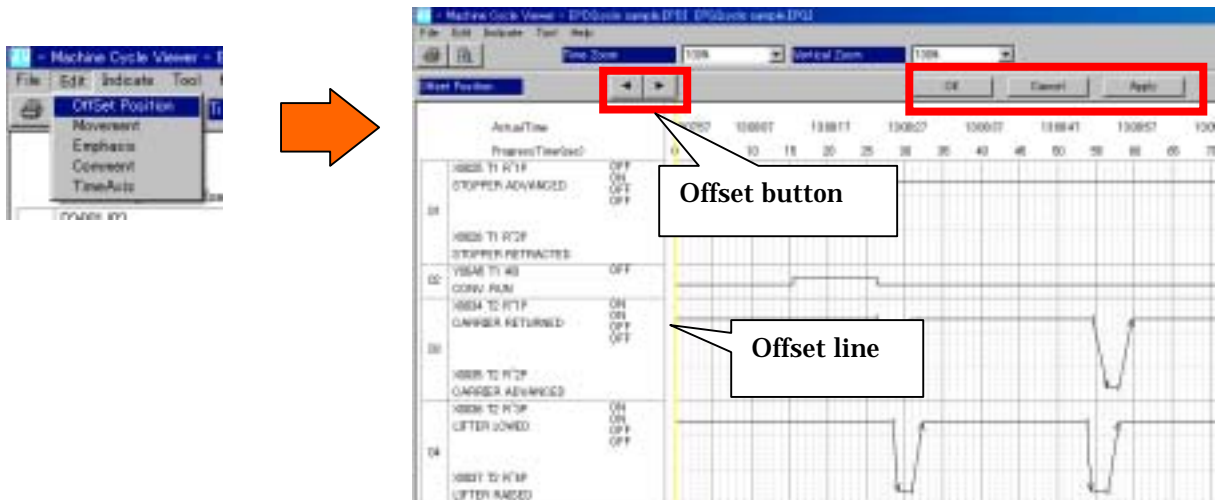
(2) . Page setting

Paper size and paper orientation at printer outputting is set by clicking 「File」 「Printer Setting」.



(3) . Offset position adjustment

Offset position adjustment is used to change start point of time axis. Click 「Edit」 「Offset Position」 then offset line and offset operation button are displayed on drawing screen.



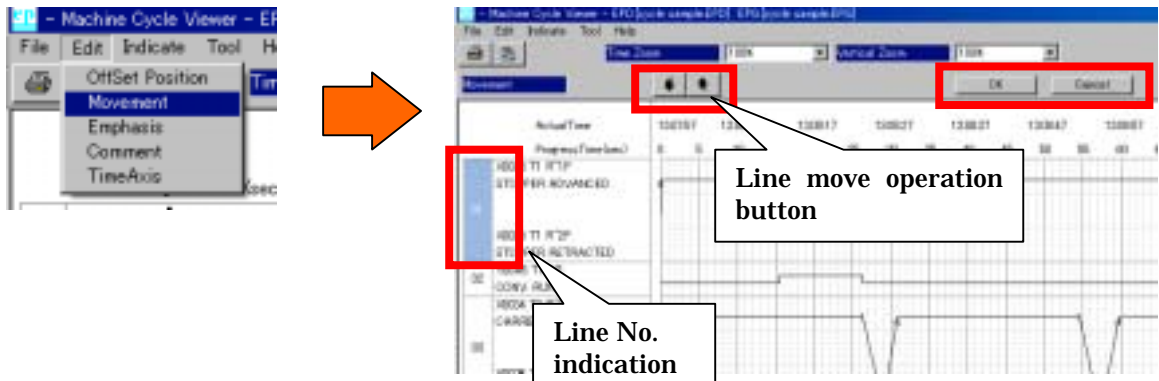
Offset line is moved to right and left by offset operation button. When position of offset line was determined then set offset by **OK** or **Apply**. Offset setting is stopped by **Cancel**.



(4) . Line movement

Display line order can be rearranged after drawing.

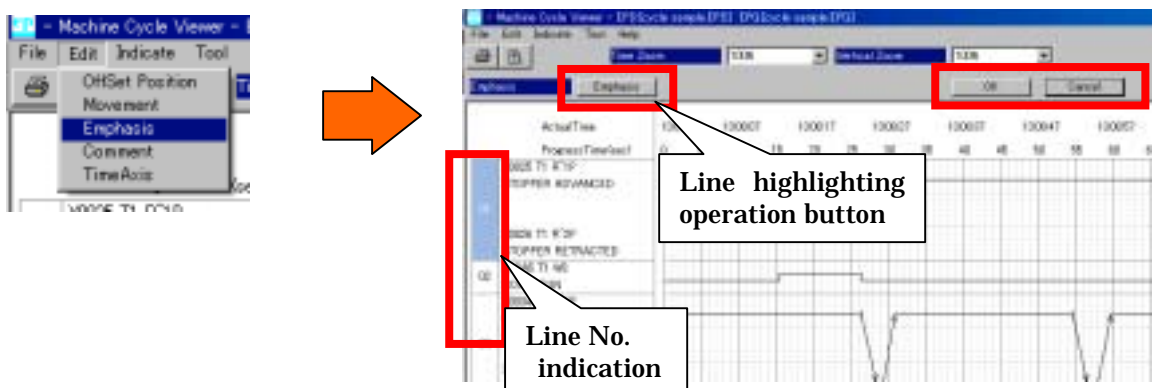
Click 「Edit」 「Movement」 then “Line No. indication” and “Line move operation” button are displayed on drawing screen.



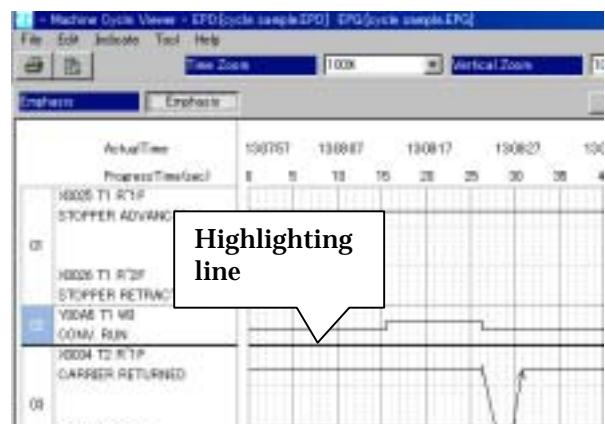
“Line No. indication” indicates line to be moved. Click the line then specified line is changed. Specified line can be moved up and down using “Line move operation” button. Line move is completed then click “OK” but line move is required to stop then click .

(5) . Line highlighting

Diagram can be observable by inserting highlighting line between lines. Click 「Edit」 「Emphasis」 then “Line No. indication” and operation button are displayed on drawing screen.

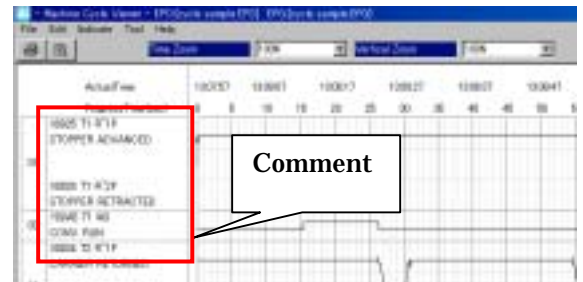


“Line No. indication” indicates highlighting line inserting line. Click the line then specified line is changed. Highlighting line is inserted under specified line. But specify line and click it when highlighting line is required to stop. Click when line highlighting is completed but click when stopped.

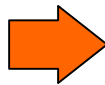


(6) . Comment

Display necessity of address comment at drawing is set.



Click 「Edit」 「Comment」 then comment drawing setting screen is displayed.



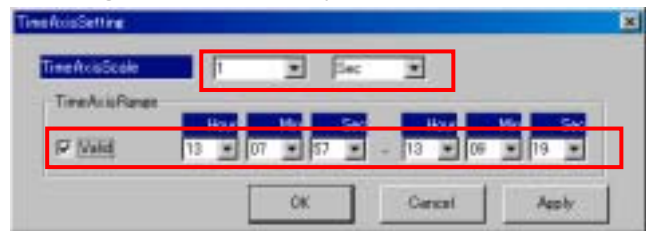
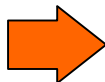
- Address: Sets presence of address display.
- Device Division: Sets presence of device classification.
- Machine Mark: Sets presence of equipment code.
- Comment: Sets presence of comment display.
- Automatic adjustment: Comment display range is automatically adjusted when comment text is long.

Click or at setting completion. Click when setting is stopped.

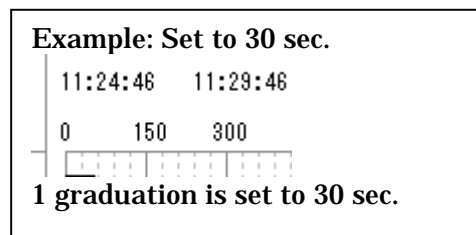
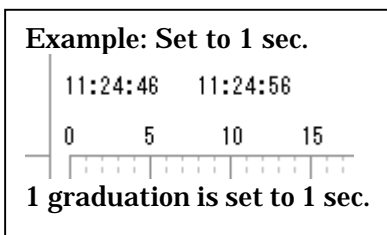
(7) . Time axis

Time axis scale and displaying time range are set. The same setting with “5-1. (5). Time axis scale setting” and “5-1. (6). Time axis range setting” can be executed after drawing.

Click 「Edit」 「TimeAxis」 then time axis setting screen is displayed.



. Unit of time axis for one graduation at drawing is set on time axis scale.
 Setting allowed units for one graduation are 「1 sec. 2 sec. 5 sec. 10 sec. 30 sec. 1 min. 2 min. 5 min. 10 min. 30 min. 60 min.」.



. Invalid (Check of Valid is released.)
 Valid (Check of Valid is set.)

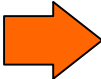
all collected data range is drawn.
 specified time zone is drawn.

. Click or at setting completion. Click when setting is stopped.

(8) . ON accumulation

Click 「Display」 「ONOff Integral」 at ON/OFF display then number of ON and number of OFF are displayed for each line.

08	X004B 1 R'21P TOOL CHECK OK				
09	X004D 1 R'23P TOOL CHECK HOME POS.				
10	Y00B2 1 W21 TOOL CHECK ADVANCE				
11	K0031 1 K2 TOOL CHECK COMP1				
12	M021C 1 D7 UNIT CYCLE				
13	M021D 1 D9 UNIT RETURN				
14	K0030 1 K1 CYCLE COMP1				



08	X004B 1 R'21P TOOL CHECK OK	ONCount 1	ONTime 0000:00		
09	X004D 1 R'23P TOOL CHECK HOME POS.	ONCount 2	ONTime 0001:20		
10	Y00B2 1 W21 TOOL CHECK ADVANCE	ONCount 1	ONTime 0000:00		
11	K0031 1 K2 TOOL CHECK COMP1	ONCount 1	ONTime 0000:20		
12	M021C 1 D7 UNIT CYCLE	ONCount 1	ONTime 0000:14		
13	M021D 1 D9 UNIT RETURN	ONCount 1	ONTime 0000:00		
14	K0030 1 K1 CYCLE COMP1	ONCount 1	ONTime 0000:00		

Click 「Display」 「ONOff Integral」 again to stop display.

(9) . Cursor move

Draw two vertical lines on diagram then time and ON/OFF state between the lines can be confirmed.

Click 「Tool」 「Cursor Operation」.

- A: Specify A cursor line to moving line.
- B: Specify B cursor line to moving line.



: Cursor line is moved toward right and left.

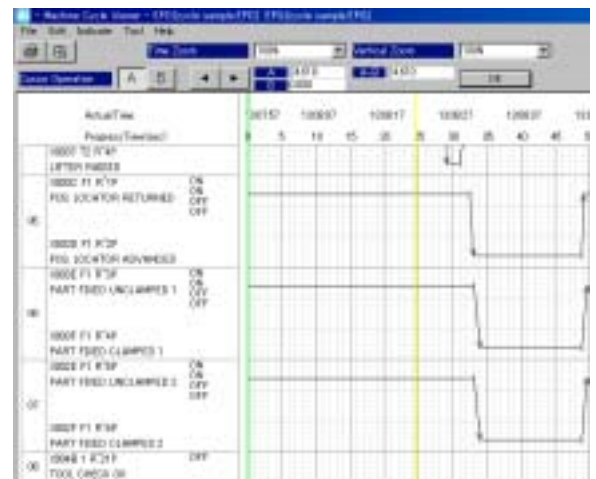
- ON/OFF state of each device on specified line.
- ON : Indicates ON/OFF signal and moving end are turned on.
- ON : Indicates SOL moving indication is turned on.
- OFF : Indicates ON/OFF signal and moving end are turned off.
- OFF : Indicates SOL moving indication is turned off.

- A: Indicates time from 0 sec to A line.
- B: Indicates time from 0 sec to B line.
- A-B: Indicates time between A line and B line.

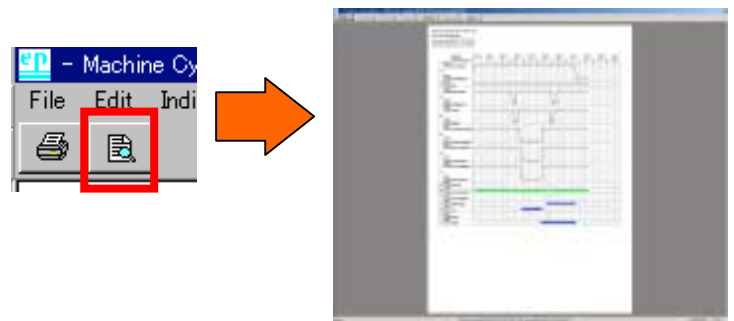
Indicates B line. Specification of B line color and specified line color at moving are set by 「Environment setting」 of launcher screen cursor color of 「Diagram Setup」.

Indicates A line. Specification of A line color and specified line color at moving are set by 「Configuration」 of launcher screen cursor color of 「Diagram Setup」.

Click when cursor operation is terminated.



- (10) . Print and preview
Displays print and preview of diagram.

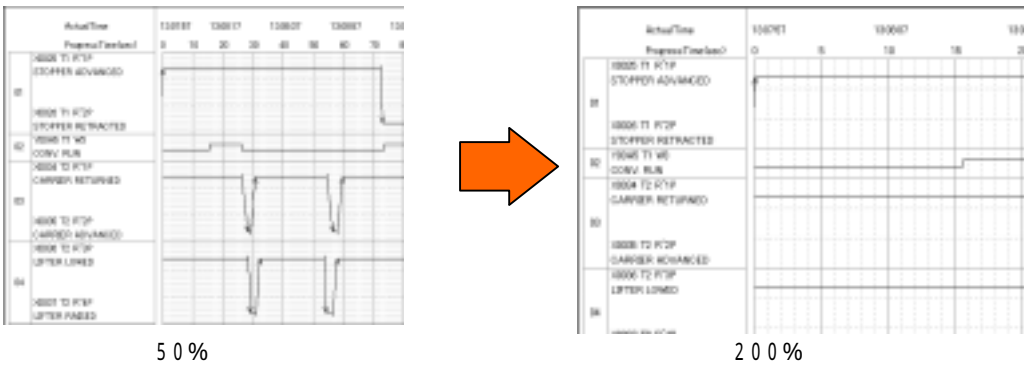


- (11) . Zoom
Changes time axis and vertical axis ratio.



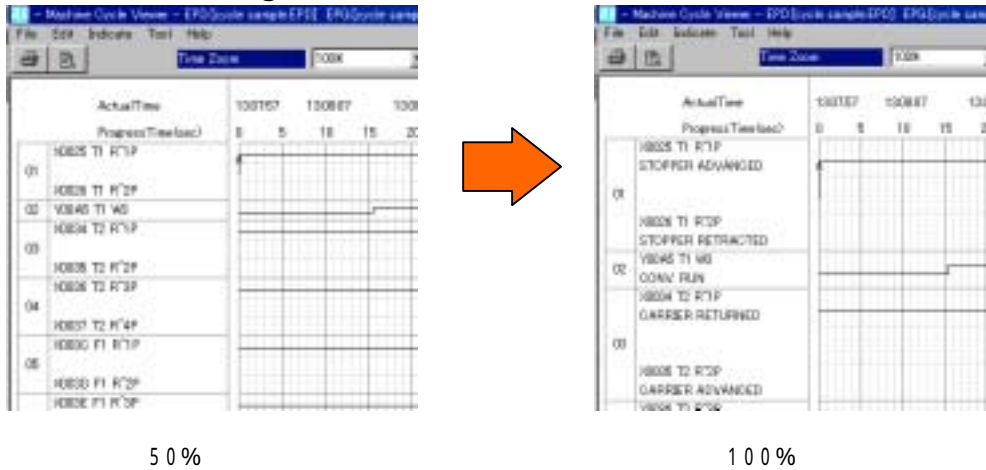
. Time Zoom

Time axis is changed into 50%, 75%, 100%, and 400%. Default is 100%.



. Vertical Zoom

Vertical axis is changed into 50%, 75%, 100%. Default is 100%.



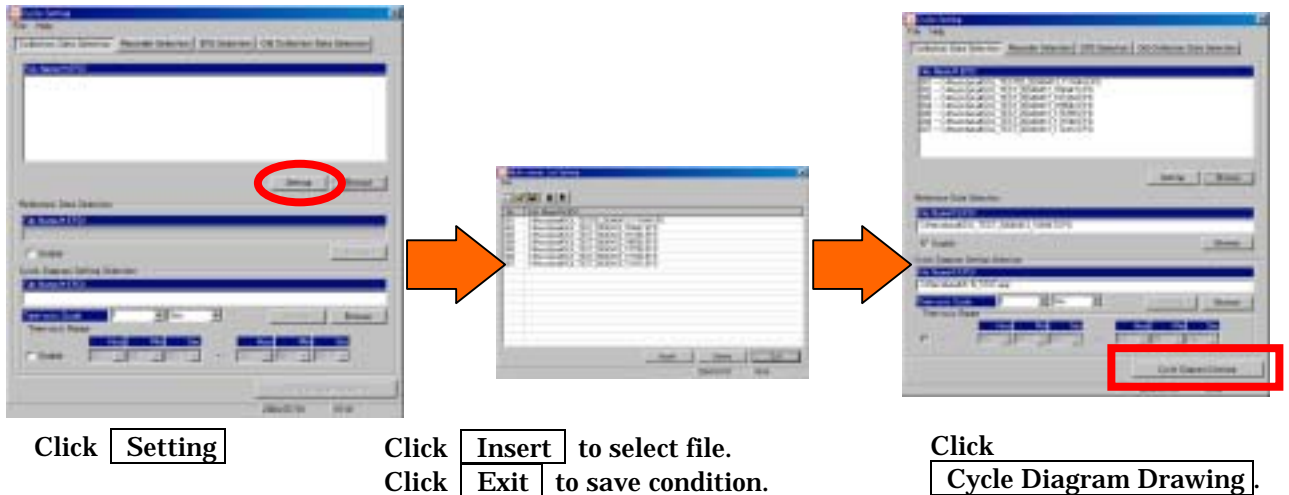
- (12) . Termination of cycle diagram
Any button terminates cycle diagram drawing when cycle diagram screen is closed.








5 - 5 . High - grade cycle diagram drawing

(1) . Multi-viewer





Drawing is possible by multi-viewer (drawing function continuously reproducing plural files) to detect error. Following procedure selects files for multi-viewer.



. Drawing operation button

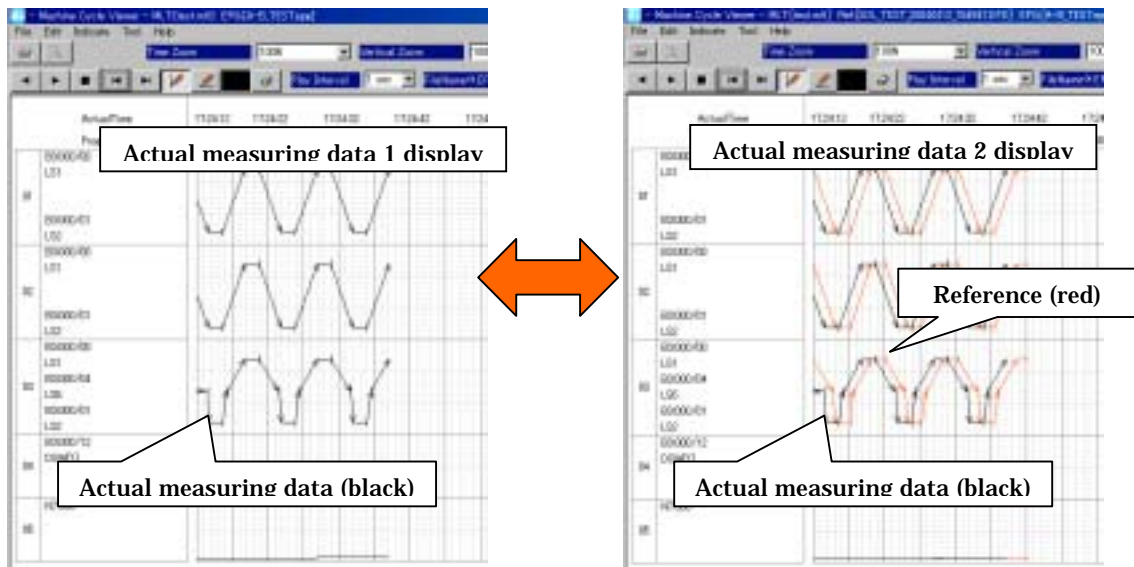
- | | | | |
|---|---|--|---------------------------|
|  | Drawing order of files is displayed in reverse order. |  | Displays previous file. |
|  | Drawing order of files is displayed in normal order. |  | Displays subsequent file. |
|  | Stops continuous drawing. | | |

. Drawing of reference line on diagram

- | | | | |
|---|---|--|---|
|  | Draws vertical reference line at mouse clicked portion on diagram. |  | Sets reference line using color pallet. |
|  | Draws horizontal reference line at mouse clicked portion on diagram |  | Erases reference line. |

. Reproducing time Display time (changeover interval) of file drawing.

. File name Indicates file name on display.



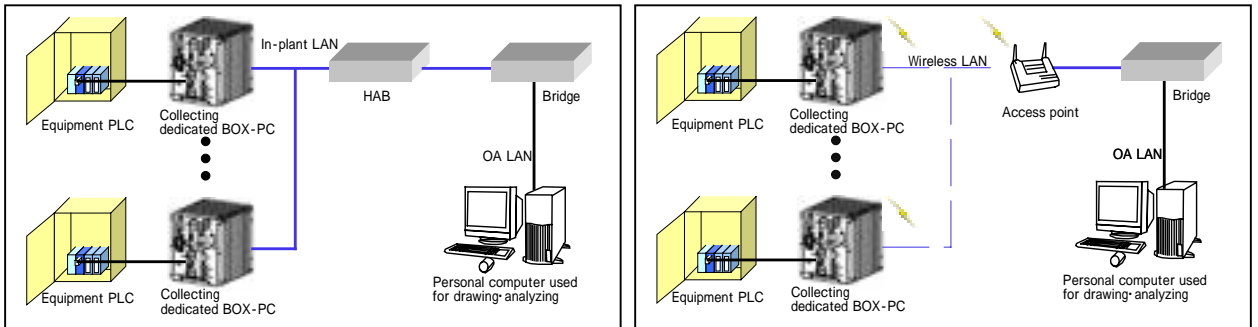
Display of reference data

When reference data is specified at multi-viewer displayed difference between each actual data and the reference data can be found in one glance, which is very useful to detect error.

(2) . Real time viewer

Current collecting data (EPD) can be drawn in real time by using machine data recorder in network environment.

[Network environment example]



. Entering of collecting IP address

Make tag of 「Cycle Setting」 screen “Recorder Selection” and enter collecting IP address that is required to draw data in real time.

. Selection of cycle diagram drawing condition

Select condition to draw in real time. Details are referred to 「5-1. (3). Cycle diagram setting selection」.





. Selection of reference data

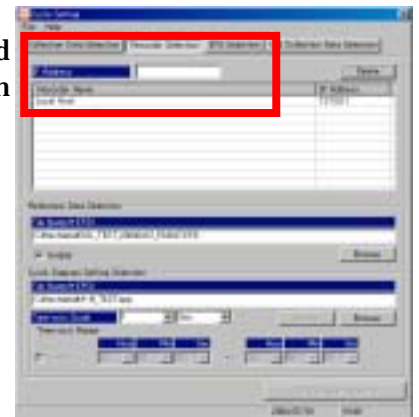
In this real time cycle diagram drawing case, the reference data also can be drawn at the same time when reference data is specified. Details are referred to 「5-1. (2). Selection of reference data」.

. Drawing of real time cycle diagram

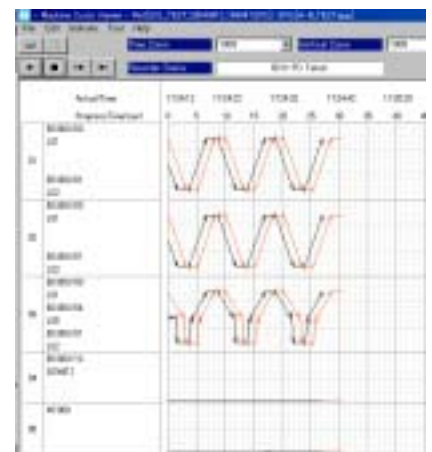
Real time cycle diagram screen is displayed when cycle diagram drawing button is clicked.

. Drawing of real time cycle diagram

-  Real time drawing start button
Starts real time drawing. (Note)
-  Stops real time drawing.
-  Displays previous file name.
-  Displays subsequent file name.



Cycle Diagram Drawing



[Caution]

System becomes 「During a reread operation」 state after collection setting by MDR. Pay attention that it becomes “Communication error” and 「False Transrate!」 is displayed at left under of the screen when real time drawing is started under this 「During a reread operation」.

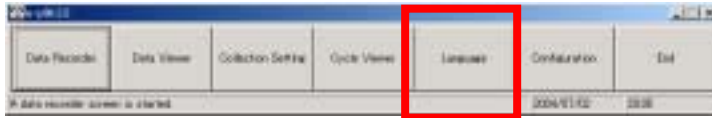
False Transrate!

2004/07/01 20:00

In this case, click start button of real time drawing again after confirming 「During a reread operation」 state was completed using MR-3004 or MDR(S)-3004.

6 . Explanation of language

Displaying language is changed over by [e-p@k](#). In this setting changeover of Japanese, English, and the third language (user's comment entering required) and edit of comment are executed.



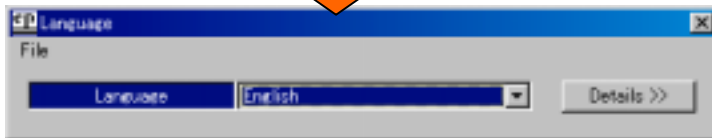
Click [e-p@k](#) initial screen (launcher).

(1) . Language changeover

Selection of displaying language: Japanese·English·other (user's comment entering required) is executed.



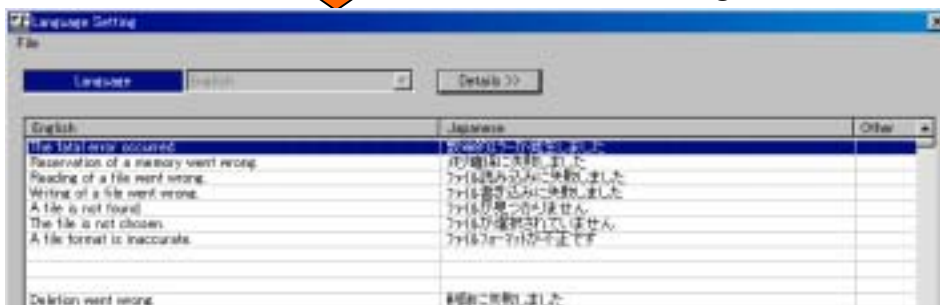
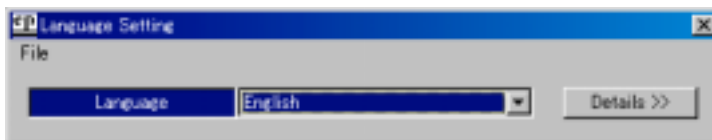
Select language and click.



Changed over to specified language.

(2) . Edit of language

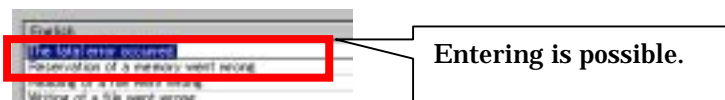
. Edit of language is executed. Click Details.



Changes over to edit screen of language.

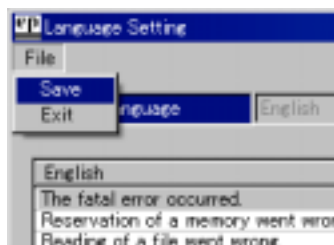
. Edit of language data

Executes double click change required item on edit screen of language then entering becomes possible.



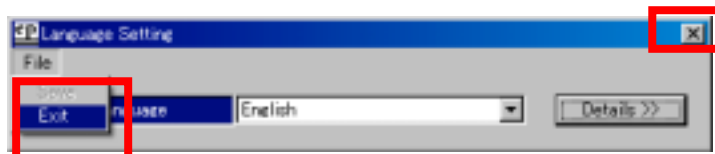
. Saving of language edit

After edit of language click 「File」 「Save」 to save changed data. Pay attention that edit content will not be reflect when the command is terminated without saving.



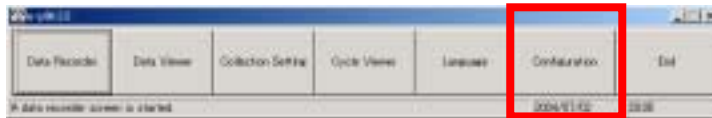
. Termination of language screen

Either button terminates language screen at closing.



7 . Explanation of Configuration function

This is detail setting when [e-p@k](#) is used



Click 「Configuration」 of [e-p@k](#) initial screen (launcher).

7 - 1 . Drawing Setup

Basic color, real time priority case number, and multi-viewer case number are set.



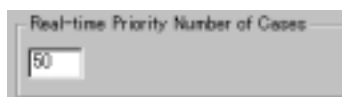
(1) . Color Master

Selectable colors at drawing setting data (EPG) preparation are set. Up to 10 colors can be set. In case of color setting, color pallet is displayed. Then select colors required to set and click **OK**.



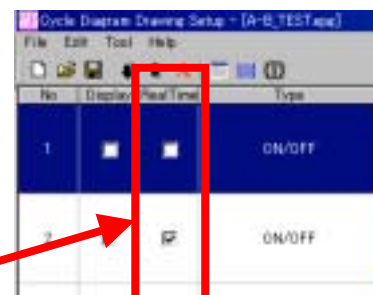
(2) . Real-time Priority Number of Cases

Displaying line number in drawing setting data (EPG) at real time drawing is set. Many numbers of displaying at real time drawing are possible when number of setting are many but performance will become lower therefore take care at this point.



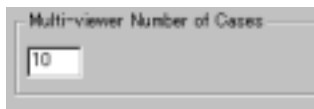
Up to 300 cases can be set.

Maximum number that priority can be checked using EPG setting.



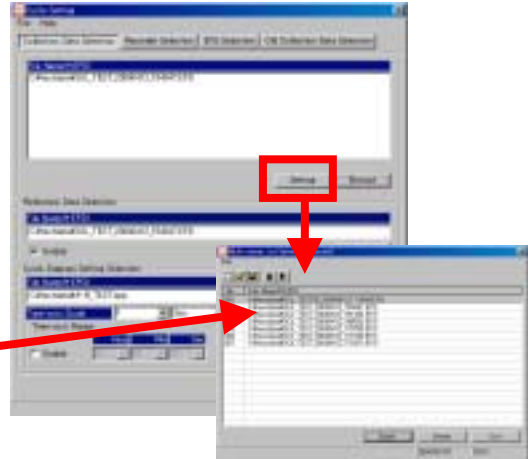
(3) . Multi-viewer Number of Cases

Maximum file number that can be displayed in multi-viewer in cycle drawing can be set. Many numbers of displaying at real time drawing are possible when number of setting are many but performance will become lower therefore take care at this point.



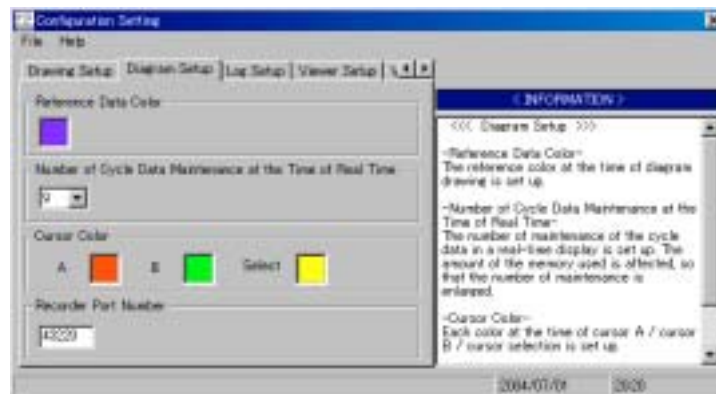
Up to 999 cases can be set.

Maximum number that priority can check using EPG setting.



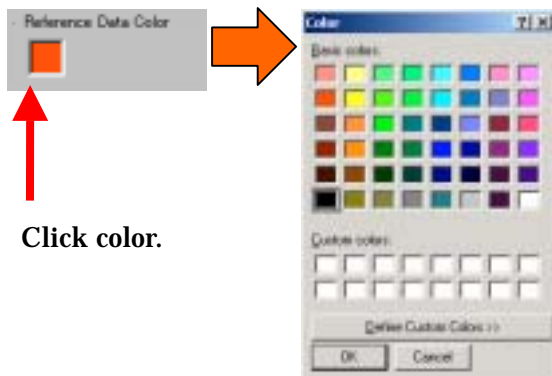
7 - 2 . Diagram Setup

Detail setting at cycle drawing.

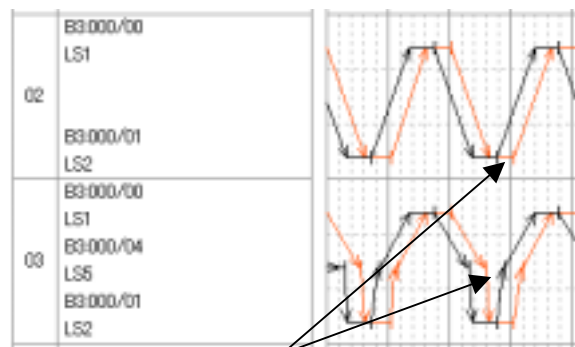


(1) . Reference Data Color

This is reference data color setting when reference data is also displayed in cycle diagram. In case color setting, click color portion to display color pallet then select setting required color from the pallet and click **OK**.

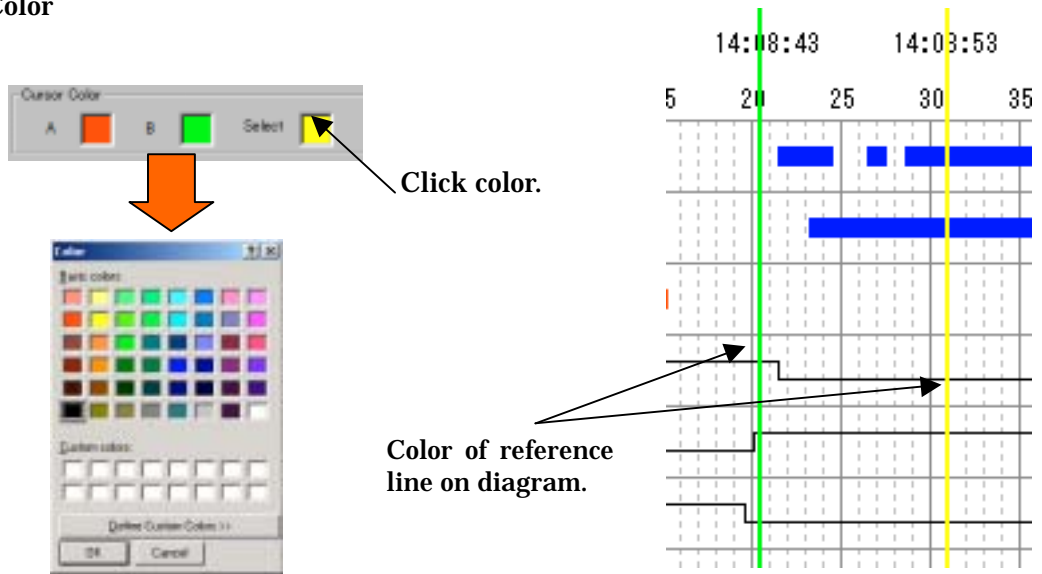


Click color.



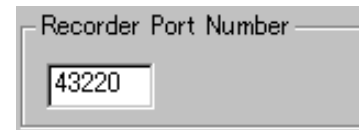
This is reference color at drawing.

(2) . Cursor Color



(3) . Recorder Port Number

Set port No. at connection when real time display is executed.



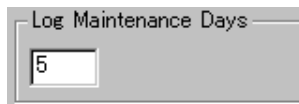
7 - 3 . Log Setup

Retaining days and level of log retaining are set.



(1) . Log Maintenance Days

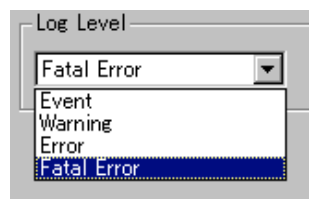
This is the days to retain log. The log is automatically deleted when days exceeds the log retaining days.



Up to 90 can be specified

(2) . Log Level

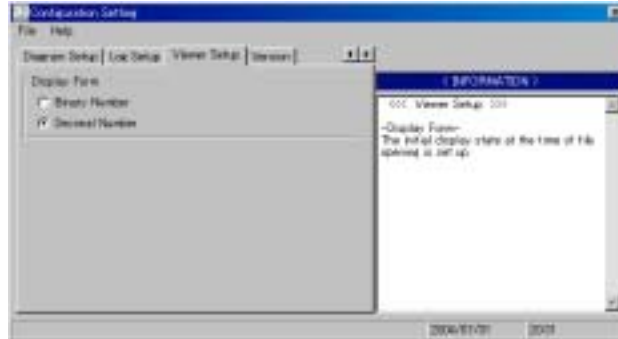
Retaining log level is set.



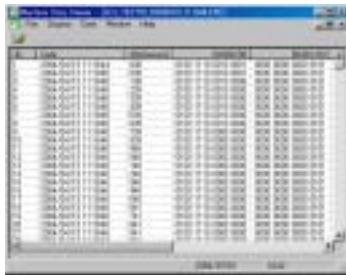
- Event: As far as operation when e-p@k was used is retained as log.
- Warning: Notice level operation executed log when e-p@k was used is retained.
- Error: Error level operation executed log when e-p@k was used is retained.
- Fatal Error: Fatal operation executed log when e-p@k was used is retained.

7 - 4 . Viewer Setup

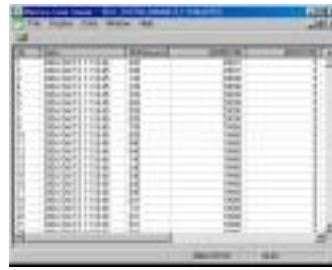
Display format of data viewer is set.



Either binary number or decimal number is selected for display format of data viewer.



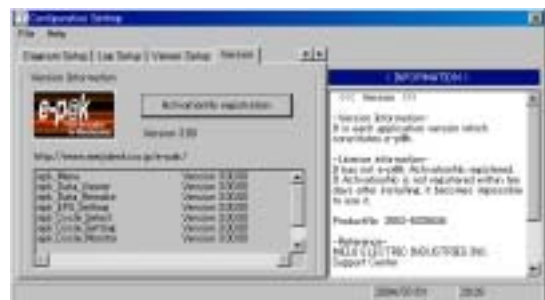
Binary number



Decimal number

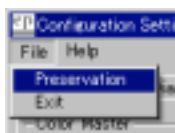
7 - 5 . Version

Displays version of e-p@k.
Version is displayed in each application that constitutes e-p@k.



7 - 6 . Termination of Configuration

Click 「File」 「Exit」 to save setting completed content.



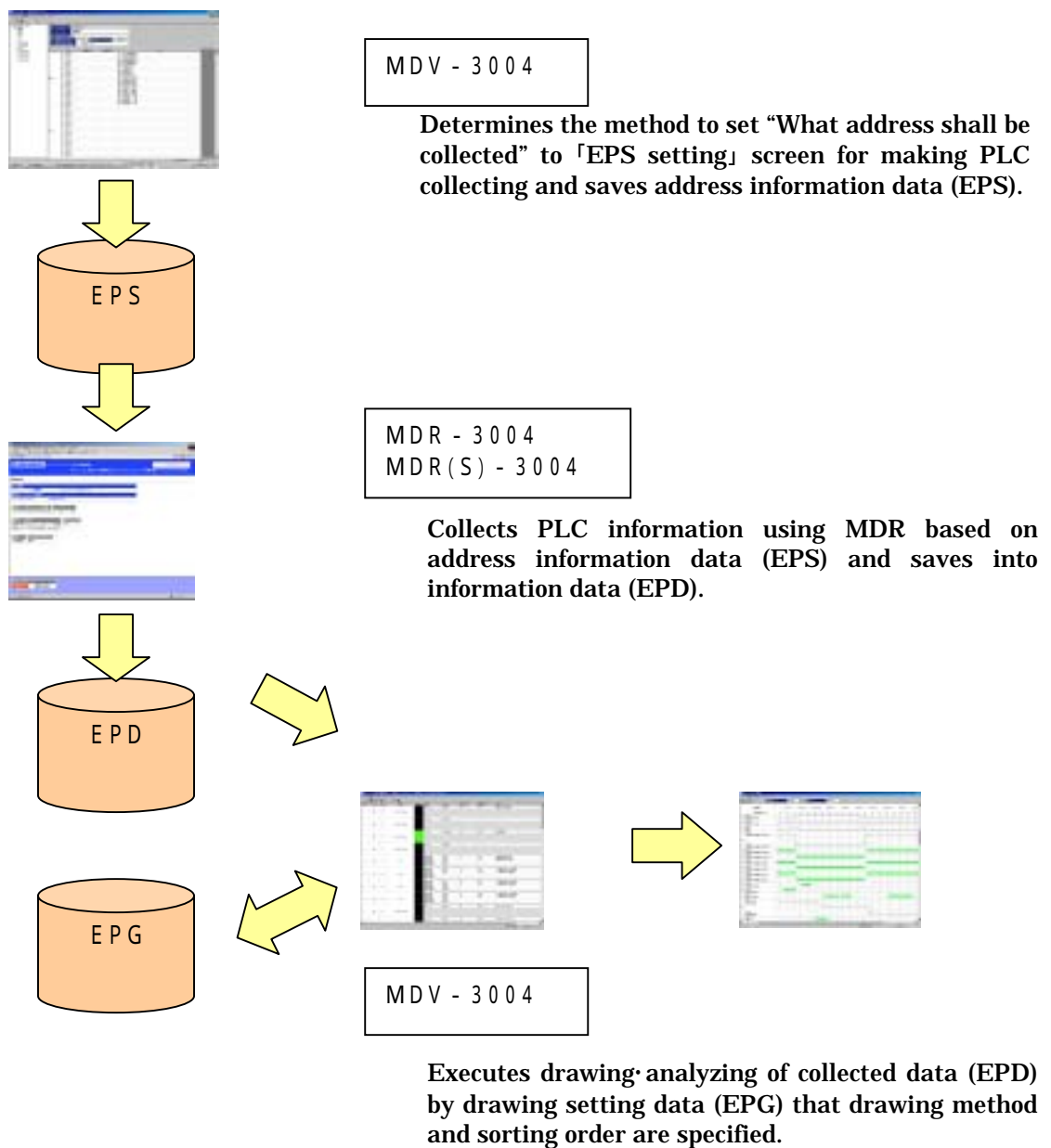
Either button can terminate this setting.



Appendix1 e-p@k various file explanation

Various files of extension are used in e-p@k. In this appendix relation between flow of work and various files is explained. These files can be roughly classified into following 3 types when they are classified according to a series of flow from collecting to drawing analyzing.

- Address information data (EPS)** Address specified file of PLC to collect using e-p@k.
- Collecting data (EPD)** Information data of collected PLC using e-p@k based on address information data (EPS)
- Drawing setting data (EPG)** Drawing method and sorting order, etc. are described setting data when information data (EPD) of collected PLC is drawn analyzing.



'Service condition of program'

Please read this service condition before this software and documentation are used.

MEIJI ELECTRIC INDUSTRIES Co., Ltd. (hereinafter referred to as 'our company') shall license this software program (hereinafter referred to as 'licensed program') only when customer agreed with this service condition. The customer shall be deemed to agree the following condition when the customer once used this 'licensed program'.

Customer is required immediately to return 'licensed program' together with all other contents present in package to the purchased dealer or our company because customer cannot install 'licensed program' and use it when customer cannot agree with this service condition. Paid charge shall be paid back in exchange by returning unused 'licensed program' and related documents. As condition to obtain 'licensed program' and right to use documentation customer shall be agreed with all items described in following.

1. Period

- (1) This service condition becomes effective when customer accepts license program.
- (2) Customer can terminate its right of use of given license of license program by this service condition at any time by submitting written notice to our company in advance more than 1 month.
- (3) Our company shall have right to terminate right of use of licensed program when customer violates any of provision of this service conditions.
- (4) Right of use of licensed program shall continue in valid until the right shall be terminated based on provisions of this service condition.
- (5) Other rights based on this service condition shall be terminated at the same time when right of use of licensed program is terminated. The customer shall tear up related documents such as provided manual, etc. together with licensed program immediately after termination of right of use of licensed program.

2. Right of use

- (1) Our company shall license exclusive right of use of 'License program' to customer.
- (2) Customer may load licensed program into temporary memory (RAM for example) at single location up to applied licensed numbers (hereinafter called 'Permitted number of computer') and use by installing into hard disk and other memory device.
- (3) Licensed program shall be deemed used at intended computer when loaded into temporary memory (RAM for example) of computer or integrated into hard disk or other memory device.
- (4) Licensed program may be used by installing it into single file server in single local area network intending either one of (not both purposes) following purposes when licensed program is structured for network.
 - Permanent install into hard disk of computer or other memory device up to permitted number of computers.
 - Using of licensed program on such network.However total number of computer that uses licensed program shall not exceed permitted computer number. For example, if there are 5 units of computer that use licensed program in different time zone, licensing required permissible computer number must be 5 units when they are serviced under such network environment that 100 units of computers are connected to a server and even simultaneous servicing computers will not exceed 3 units.
- (5) Right of use for obtained licensed program shall be terminated when customer obtains upgraded licensed program of the obtained licensed program.
- (6) Customer shall not permitted in any case, servicing, reproducing, changing, delivery, or transmitting: excluding forcible provisions, reverse engineering, reverse assembling or adaptation of licensed program: permission of reuse and leasing or loan.
- (7) In any case, customer shall not reprint related document of provided manual, etc. together with licensed program to reproduction, document, magazine, and network.
- (8) This service condition shall not indicate any transferring of intellectual property lights related to licensed program.
- (9) Customer shall be required to take proper action for licensee of this licensed program to make the licensee comply with this service condition.

3. Transfer of right and duty for license program

- (1) Customer may assign customer's right based on this service condition only when following conditions are satisfied.
 - Customer shall not assign this service condition, licensed program and its related duplicate as well as related documents such as provided manual together with licensed program and make them retained completely.
 - Assignee shall agree with this service condition in written format.
- (2) Customer shall not execute licensing, assigning, transferring, and other disposing of licensed program and right of use to the third party.

4. Limitations of warranty

Our company, concerning licensed program, shall guarantee to meet to specifications specified by our company as long as customer uses our licensed program under specified operating environment specified by our company. Our company shall not guarantee that execution of licensed program shall not be interrupted, shall be free from error in its execution, or all the errors shall be corrected. Service result of licensed program shall be attributed to responsible of customer. Guarantee period of licensed program shall be terminated when program service for intended licensed program is terminated. During guarantee period our company, concerning part that is not changed in licensed program shall provide guarantee for the error caused by 'cord' through program service.

5. Limitations of responsibility

Our company and supplier shall no liability for responsibility for special, accidental, indirect or resulted damage due to availability or incapability of licensed program and support service rule or nonperformance of providing (damage due to business profit loss, loss of business information, or including financial loss other than this, but these are not limited to) even if our company was informed the possibility of damage unless subjected to applicable laws.

In any case all responsibilities of our company under this service condition shall not exceed the amount that customer actually had paid for the licensed program. Above limitation is not always true depending on customer's situation because limitation or exclusion of responsibility is not permitted depending on area.

6. And others

This service contract shall not intend to change right of customer based on Consumer Protection Law. Our company shall cancel this service contract in the event of the customer's breach of this agreement. In this case right of use for the licensed program also shall be terminated. Customer shall comply with related law and regulation of import and export.

Right of claim based on this service contract shall be extinguished by prescription as of the date subsequent to two (2) years when cause of occurrence has been generated regardless of the claim.

Neither party hereto shall be responsible for damage attributed to other than own party.

No part or whole of this product may be reproduced in any form including photocopying without permission of our company. Contents specifications of this product are subject to change without notice.

Please accept that our company cannot be held responsible for influence of operated result of this software and manual.

Although our company expends all possible means but if you should find any doubtful point please immediately inform us.

User registration

Enter required items into 「User registration FAX paper」 enclosed herewith this product and send to our company or to access to our [e-p@k](#) homepage to make your user's registration.

“User key” will be informed to the customer who made user registration.

Various services is available to the customer who made user registration on [e-p@k](#) homepage.

Change of user registration is not possible after user registration when product is handed over.

Latest version of this manual can be downloaded from [e-p@k](#) homepage. (User registration is required.)

Concerning education

「Operator education of e-p@k」 is implementing based on curriculum for effective use of our [e-p@k](#). Refer to [e-p@k](#) homepage for detail.

Concerning trademark

Formal name of Microsoft® Windows® is Microsoft® Windows® operating system.

Microsoft® Windows® is registered trademark of United State Microsoft ® Company in United State and other countries.

Ethernet is the trademark of United State Western Digital Company.

Also company name, product name listed in this manual is trademark or registered trademark of each company.

Machine Data Viewer User's Manual

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